MAY, 1955

PRODUCTS finishing

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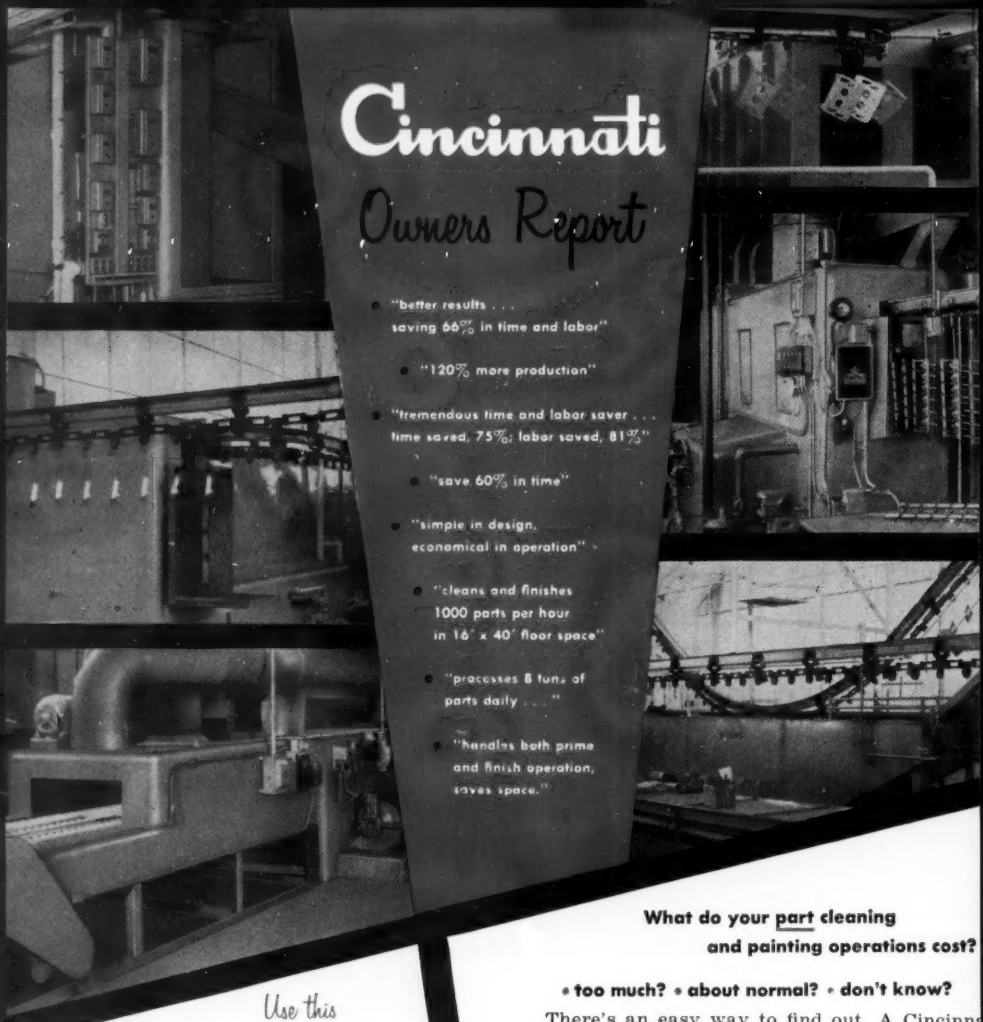
Finishes on *Metal* Products



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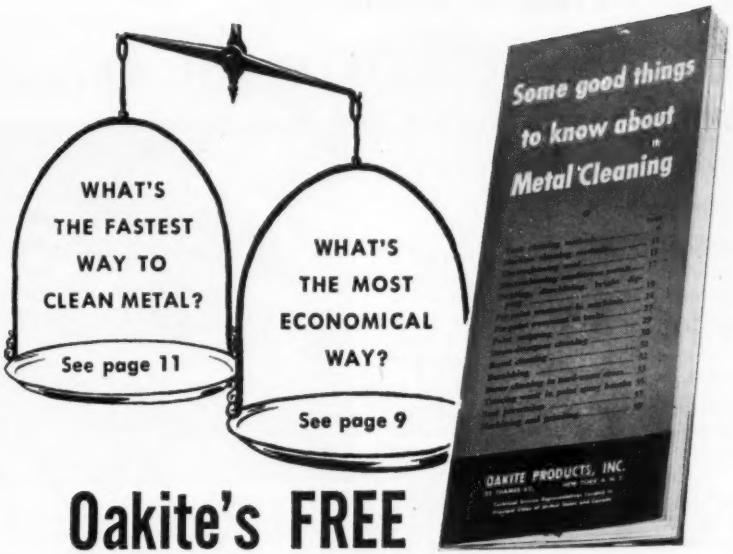
WHAT'S THE FASTEST WAY TO CLEAN METAL?
See page 11
WHAT'S THE MOST ECONOMICAL WAY?
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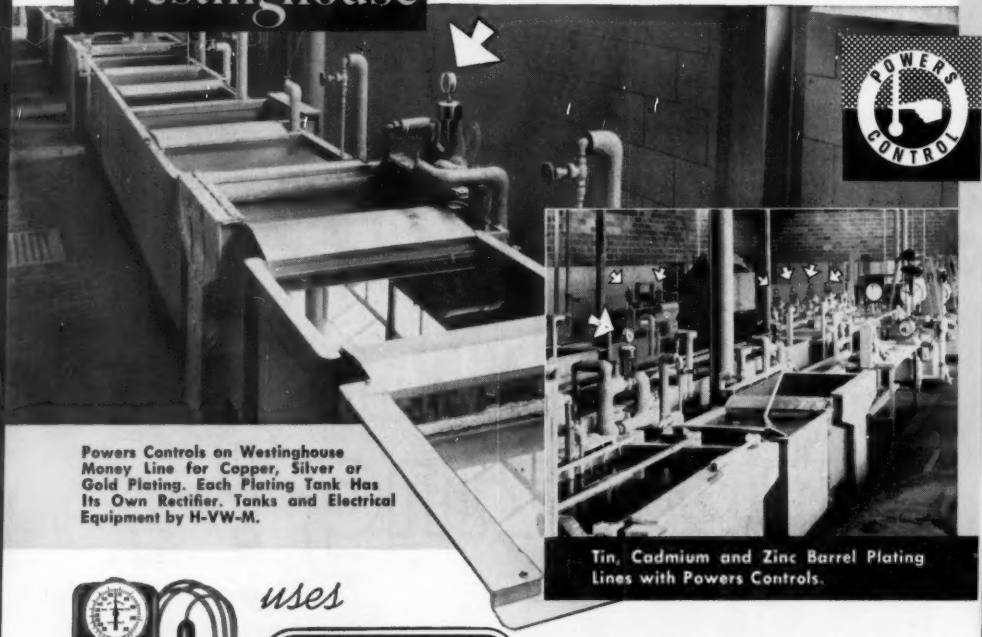

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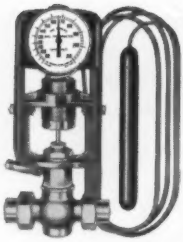

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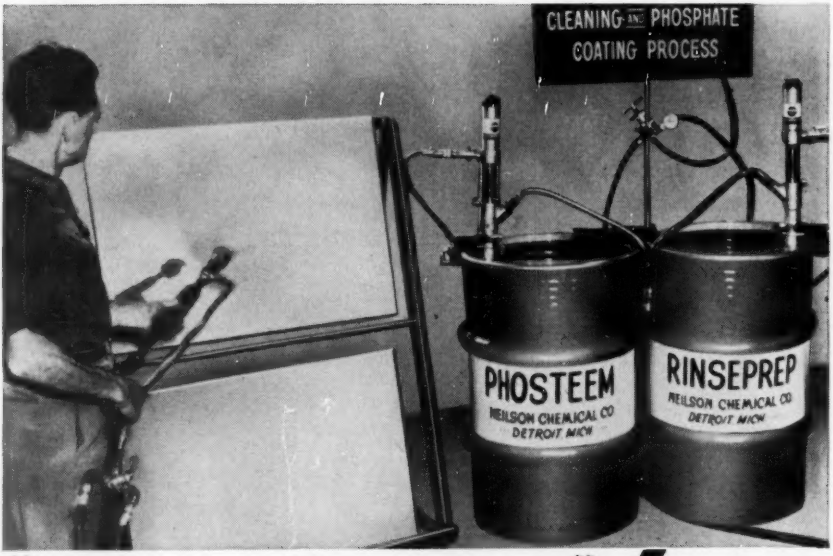

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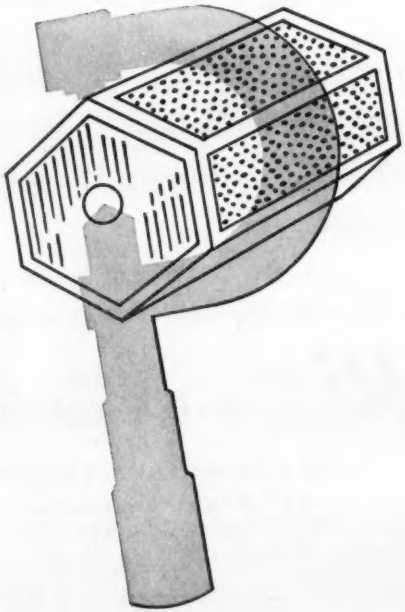

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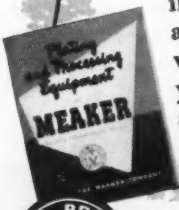

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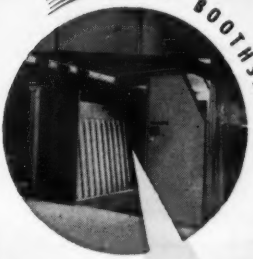

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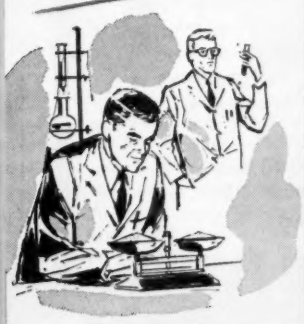

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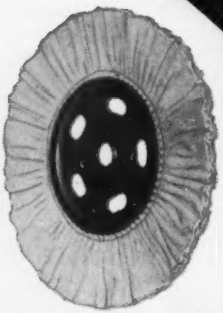

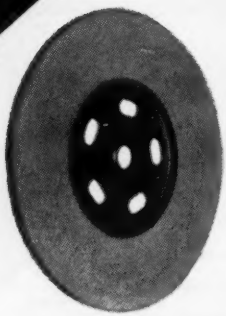

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These famous long-wearing buffs run cool under all buffing conditions. High count bias-cut cloth is assembled on ventilated steel centers. Each section is perfectly balanced and faced—requires no raking.

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You have a pleasant surprise coming if you haven't tried the new Zippo bias-type sisal buff. It was specifically developed for steel buffing—to blend polishing grit lines—to cut down stainless steel—and bring up a bright lustre.

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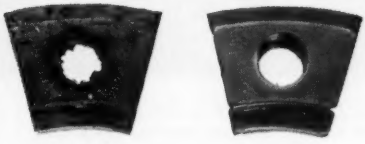

BEFORE AFTER

Machinery manufacturer reduced finishing costs 99.4% on this part—from .054¢ to .0003¢ per piece.

If you produce parts of any kind that require finishing, why not get the facts today on how Supersheen provides a better finish faster — at less cost with increased production.

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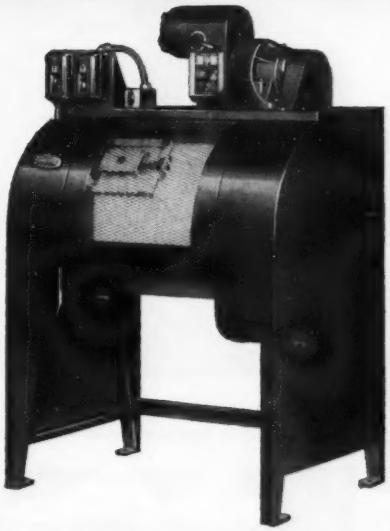

MODEL DB-50

For processing small and medium size lots of parts. Model DB-50 is designed to include ALL THE ADVANTAGES of larger models but with SMALLER CAPACITY. 24" long by 22" diameter drum allows processing of fairly large parts in large quantities. All barrel finishing operations can be performed in this machine including grinding, deburring, descaling, polishing and cleaning.

ALMCO SUPERSHEEN, Albert Lea, Minn.

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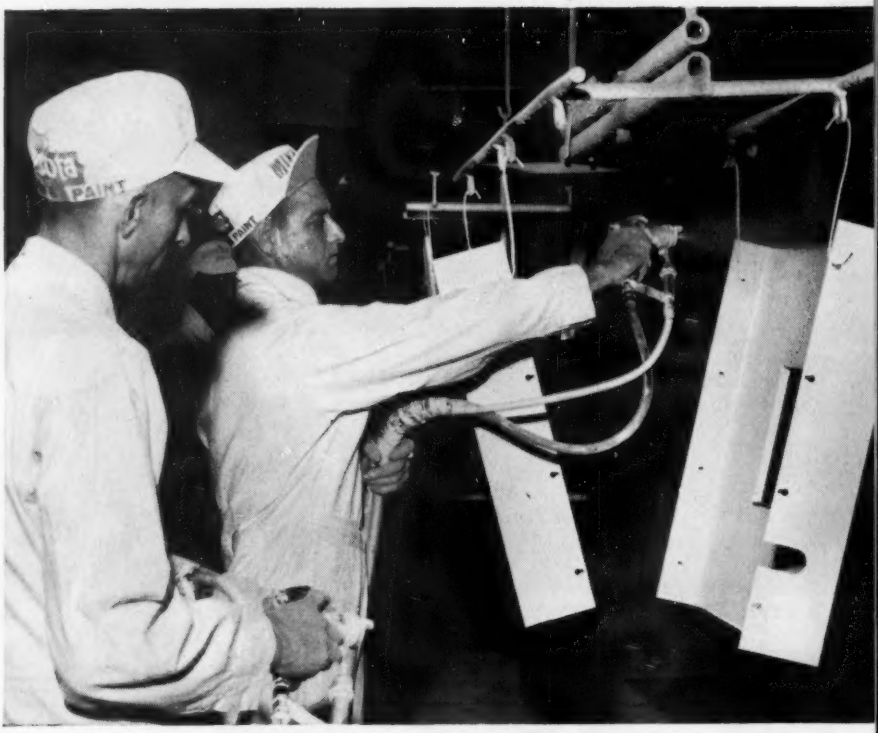
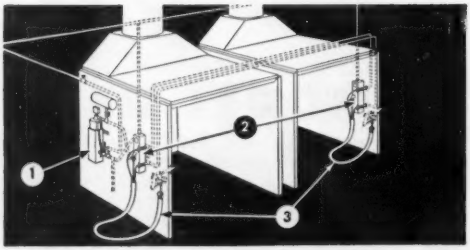
VISIT BOOTH 430, NATIONAL ELECTROPLATERS' CONVENTION, JUNE 21-23, CLEVELAND.

DeVilbiss hot-spray system



McCray paint-line operators like the DeVilbiss system because it makes the paint spray the same, cover the same regardless of room temperature or weather conditions.



DeVilbiss hot-spray system is foolproof; adapts to multiple gun hook-ups. Hot water from master heater (1) heats paint in exchangers (2); heat-jacketed hose assemblies (3) keep paint hot right up to guns, assuring uniform viscosity at all times at each gun.

SPRAY GUNS • AIR COMPRESSORS • HOSE AND HOSE CONNECTIONS

has cut rejects at McCray Refrigerator Company

Familiar problem: Rejects had been slowing production and causing costly refinishing at the McCray Refrigerator Company, Kendallville, Indiana. The hot-spray equipment McCray had been using failed to maintain the precise pressure, temperature, and viscosity control necessary in the application of enamel paint.

Cost-saving solution: McCray took its problem to DeVilbiss. The result: DeVilbiss' hot-spray system has cut rejects; reduced air and fluid pressures; and keeps temperature and viscosity constant, providing flawless coverage. Production, now running a full 8-hour day without a break, has increased.

Because of accurate temperature control *right up to the gun*, McCray has realized big savings. Less solvent is used in the paint. What's more, the simple operation of the DeVilbiss system has made the enameling job easier; cut maintenance costs substantially.

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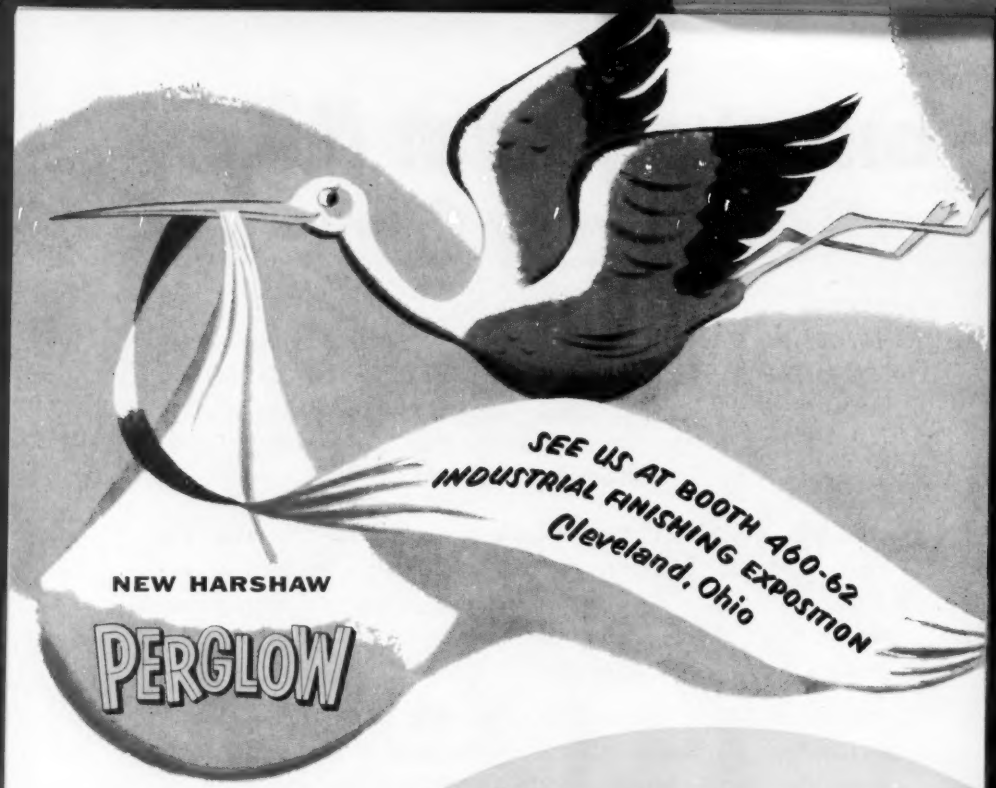

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Pf editorial

Vol. 19, No. 8

MAY, 1955

Take Steps To Improve Your Finishing Shop Maintenance

The job of keeping a finishing plant running efficiently involves a great deal more than just ordinary shop housekeeping. In addition, there are plating solutions to treat and purify, equipment to clean and repair, spray booths to clean, water wash systems to recharge, filter units to clean, and many other jobs that add up to work over a great many week ends out of the year for the finishing plant supervisor, finishing engineer, or maintenance man.

Fred G. Brune, who, like your editor, is no stranger to week-end maintenance work, in his article beginning on Page 32 of this issue, outlines a few points to consider in reducing the maintenance problem in electroplating plants. Among the examples cited by Mr. Brune are: devices to eliminate maintenance work on equipment, devices to reduce or prevent damage to equipment, and ways of making the actual work of solution treatment (for example) easier.

Some of these suggestions can be adopted at any time, but others involve finishing equipment design and specifications. It is important that such equipment be specified or approved by engineers and production men with actual operating experience. These men, while keeping in mind the primary objective of getting equipment to produce the most work at the lowest cost, will not overlook any details which may cause maintenance headaches at a later date.

Finishing plants where efficient maintenance practices and good housekeeping are observed gain a number of advantages. People like to work in such plants because things run smoothly and rejects are few. People have pride in a clean, well-run shop. Customers, too, are impressed with an organization that provides finishing facilities which have an appearance comparable to that of the high-quality product being manufactured.

Modern finishing equipment is designed for smooth operation and a minimum of maintenance. However, finishing equipment and supply manufacturers who invent devices that will eliminate or reduce maintenance, or who formulate materials or develop processes to ease the maintenance load, will find ready listeners and eager purchasers among production men.

Ezra A. Blount

—EDITOR

CONVEYORIZED SHELL FINISHING

By EZRA A. BLOUNT
Editor

Shell manufacture is accomplished by forming and machining, and finally phosphatizing and interior and exterior painting. These operations are connected with conveyors of various kinds in the Berwick, Pa., plant of ACF Industries, Inc., so that production flows smoothly from one end of the ¼-mile-long plant to the other. Automatic machines and processes are employed advantageously.

PRINCIPAL PRODUCTS of the Berwick, Pa., plant of ACF Industries, Inc., are railway cars. However, a special plant has been erected there to produce 8-inch shells for the Army Ordnance Corps. That no stone has been left unturned to make this shell plant efficient and economical is demonstrated by the fact that ACF Industries has voluntarily returned millions of dollars to the government, representing actual savings on government contract products.

An 8-inch shell starts life as a cylindrical steel billet which weighs approximately 290 pounds. It is set down at one end of the long, high-ceilinged shell plant and from then until it is loaded into a waiting

Fig. 1 (left)—Washing machine operator rolls shells from a rubber-covered bench onto the special fixtures of the automatic conveyorized washing, rinsing and drying machine shown.

freight car at the other end of the plant, it scarcely touches the floor. Gravity and powered roller conveyors, overhead monorail conveyors, and mechanical handling devices are utilized to facilitate handling and processing of the shells rapidly and efficiently.

Fabrication Processes

The M 106 8-inch artillery shell is formed from a square billet of steel. It is delivered to the machining and finishing plant and there undergoes a series of machining and other operations to produce an article of exact dimensions, wall thickness and physical properties.

Following the cleaning process, the shell nose is machined and bored, and at the same time the nose end is machined to length.

Shell bodies are finished by being turned on a lathe, with four cutting tools working at the same time.

The shell boat tail and base is next machined and cut to size by means of a carbide cutting tool. In this cutting machine, two operations are performed simultaneously.

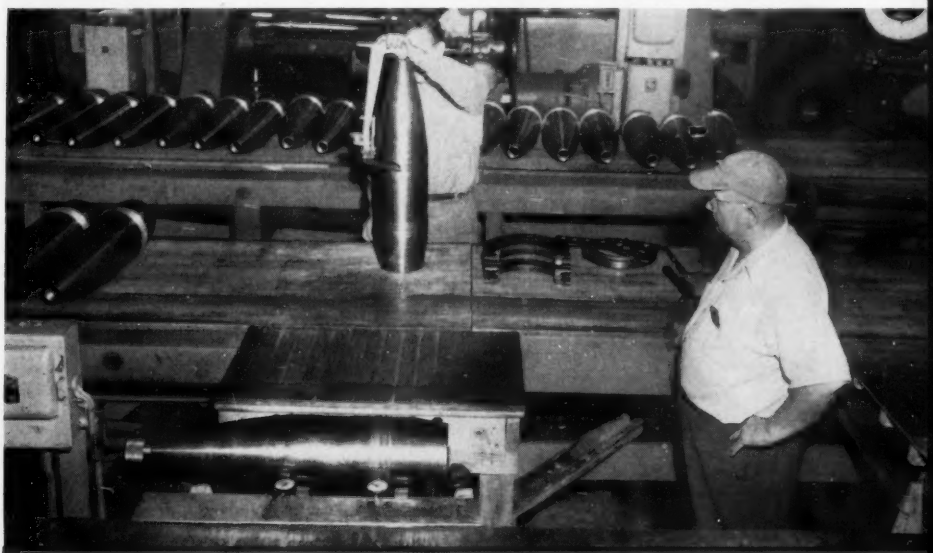

Fig. 2—Final inspection for dimensional accuracy and condition of shell surface is made with the aid of a number of gages and inspection devices after machining operations have been completed and before final finishing operations are begun. The machine in the left center foreground is used to check shell concentricity and balance.

Shell Finishing

The inner surface of the shell nose is next machined followed by machining operations on the groove for the brass rotating bands. In this process, three operations are performed simultaneously to produce a band groove with an undercut taper.

The shell nose is now threaded so that a nose plug may be inserted to use in handling the shell in the final processes of manufacture, and more important, so that a fuse may be inserted in the same threads when the shell is ready for final use. At this stage in its manufacture, a shell weighs approximately 160 pounds.

Shells are now washed with solvent fluid to remove the cutting oil and swarth from the shell interiors after which the shells are upset to drain.

Following the preliminary washing process, shells are rolled from a table onto a conveyorized pressure washer, as shown in Fig. 1, so that shell interiors and exteriors can be thoroughly cleaned by the hot alkaline solution. The automatic machine shown is fitted with special nozzles so that a cleaning solution is sprayed into the shell interior as

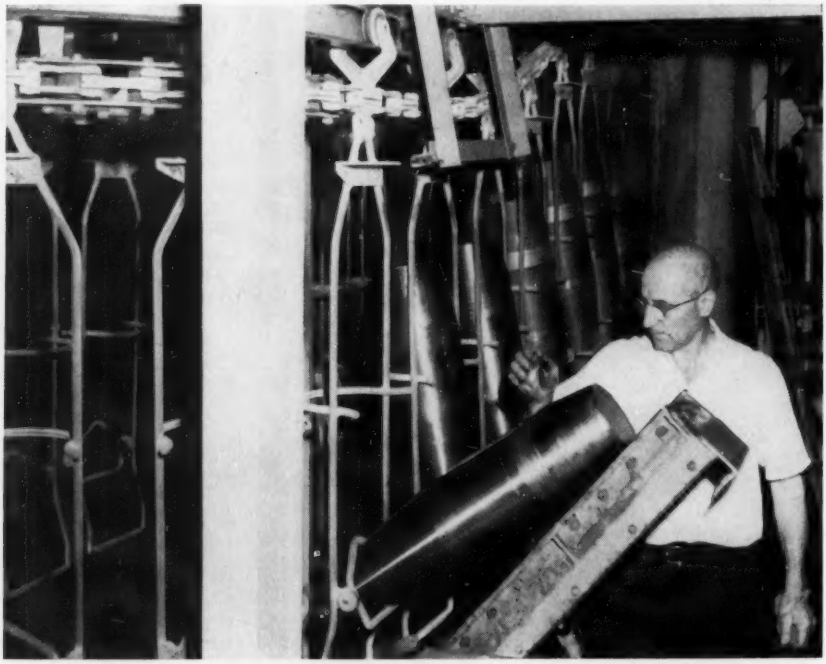

Fig. 3—Handling a 160-pound object requires mechanical equipment for all operations. Here the operator is shown loading shells into specially designed racks for cleaning and phosphatizing by means of a hydraulic loader.

well as over the outside surface. Following the washing with alkaline cleaning solution, shells are thoroughly rinsed with steam, and dried with hot air automatically in the cleaning machine shown.

Another inspection operation is performed on the shells at this point in their manufacture. Following this, rotating bands are pressed into the band grooves prepared for them. Bands are then carefully turned to the proper dimensions and steel base plates are welded on in a continuous roll welding machine. Protective band covers are placed over rotating bands.

There follows a final fabrication inspection to determine accuracy of machining, concentricity and surface condition (Fig. 2). At this point, each shell gains an identity in that individual numbers are stencilled on the shell.

Phosphatizing and Finishing

Shells are delivered from the inspection station to an automatic cleaning and phosphatizing machine and loaded with the open end down in a specially designed rack with the aid of a loading device shown in Fig. 3. The overhead monorail conveyor carries the products through the cleaning and phosphatizing process, in which both the interior and

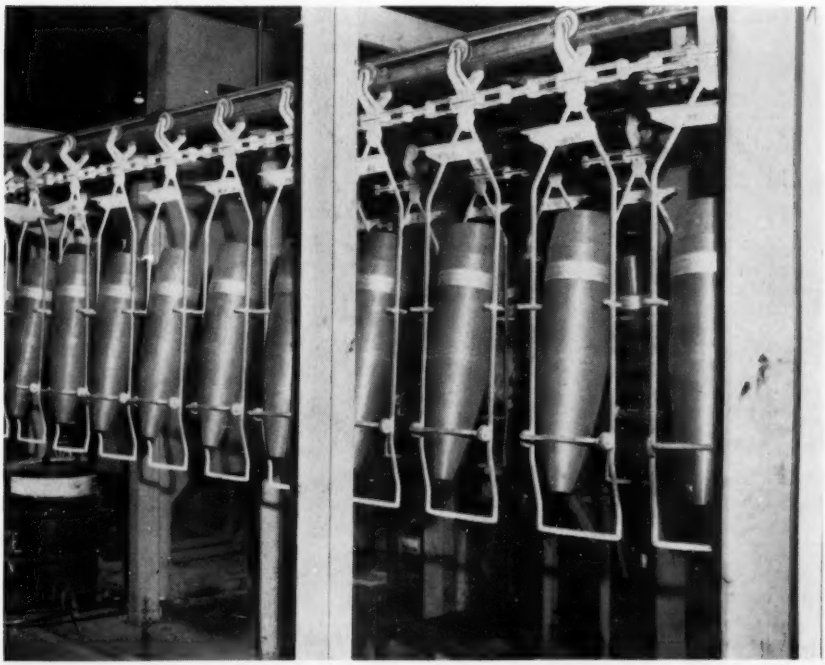

Fig. 4—Shells emerge from the automatic cleaning and phosphatizing machine uniformly coated inside and out with a complex phosphate film.

exterior surfaces are thoroughly cleaned and coated with a film of a complex phosphate in accordance with U. S. Army Ordnance Department Specifications. The 6-stage machine, which was designed and built by the Cincinnati Cleaning and Finishing Machinery Company, Sharonville, Ohio, carries the shells automatically through the following pressure spray cleaning and phosphatizing process:

1. Alkali clean for 53 seconds with a solution of Emulsoprep No. 530 (Neilson Chemical Co.) at a concentration of 1 oz./gal. and a temperature in the range of 160 to 180 deg. Fahrenheit.

2. Hot water spray rinse for 53 seconds. Temperature 130 to 150 deg. Fahrenheit.

3. Phosphatize for 105 seconds in a solution composed of 15 pounds Lyfanite Z Liquid and two ounces Lyfanite Accelerator to each 100 gallons of water. Operating temperature is in the range of 125 to 130 deg. Fahrenheit.

4. Spray rinse for 30 seconds with rinse water at room temperature.

5. Chromic phosphoric rinse for 30 seconds in a solution composed of 4 fluid ounces Rinseprep H per 100 gallons of water. Operating temperature is 170 deg. F.

6. Dry in warm air drying oven for approximately 4 minutes. No external heat need be applied in this oven since the heat retained by the shell from previous contact with hot solutions supplies all the heat necessary for drying. Air circulation in the oven is the only requirement.

In all the operations discussed, pump spray pressures are approximately 20 p.s.i. with the exception of the phosphatizing stage which is operated at a pressure of 15 p.s.i.

The solutions are all circulated from make-up tanks located below the processing tunnel and integral with the machine. In the case of the circulating rinse water, fresh water is added constantly to the system and each collecting tank overflows continually so that rinsing is performed with relatively clean rinse water. The chemical concentration of all solutions is carefully con-

trolled by daily chemical analysis.

Figure 4 shows the phosphatized and dried shells emerging from the end of the straight-through cleaning and phosphatizing machine. Shells are unloaded from this conveyor and placed on a horizontal power-driven block conveyor which carries them through an automatically-operated interior spraying machine in which shell interiors are sprayed with a uniform coat of Specification Jet Black paint. This device is so designed that, as a shell reaches the painting position, it is rotated horizontally and the spray nozzle, located at the end of a long tube, is automatically brought into operation by means of a hydraulic mechanism. Paint is sprayed as the tube is withdrawn from the shell.

Following the painting operation, shell interiors are inspected for completeness of coverage and placed on a power-driven slat conveyor. While on this conveyor, the handling plug is inserted in the threaded nose to facilitate further handling of the shell, and also to prevent contamination of the shell interior.

Shells are unloaded from the slat conveyor and attached to an overhead monorail conveyor which carries them through the final painting

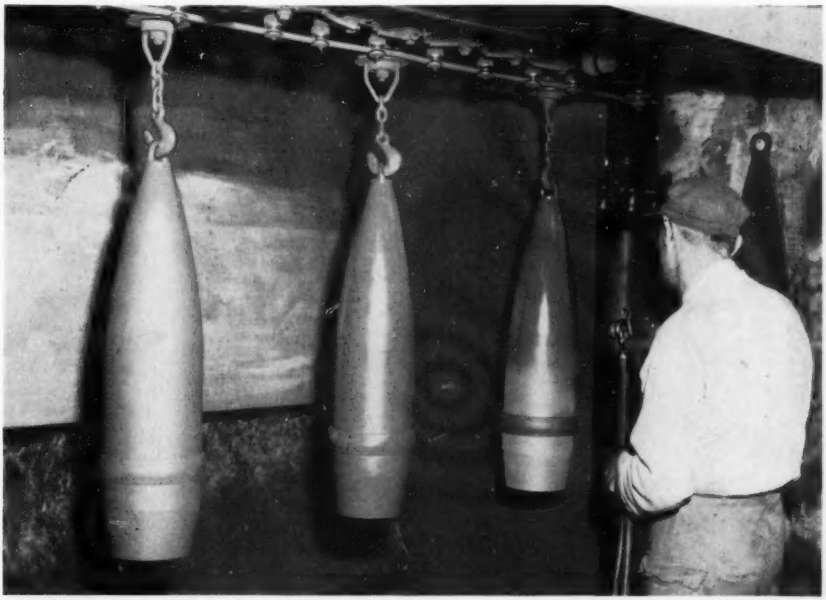

Fig. 5—In this water wash spray booth, shells receive a uniform coating of Olive Drab Lacquer. The shells rotate while being sprayed so that the operator can apply a uniform coating. As can be noted in the illustration, the lacquer dries almost as soon as it is applied since the 160-pound shells still retain a great deal of heat from the processing solutions.

". . . inspection, drying and cooling conveyor carries the shells past final inspection . . ."

operation. A mask to protect the rotating band is placed on the shell prior to painting.

The shells are conveyed through a water wash spray booth and sprayed with Olive Drab Lacquer in accordance with Ordnance Department Specifications (Fig. 5). During the spraying operation, each shell is rotated continuously so that the painter can apply a uniform lacquer coat.

The lacquer dries quickly since the shells are still warm by reason of the residual heat retained from cleaning and phosphatizing. A combined inspection, drying and cooling loop in the processing conveyor carries the shells past a series of final inspections, and transports them to the unloading area where they are stacked for packing and shipping. The band masks are removed while the shells are conveyed around this loop of the painting conveyor shown in Fig. 6.

Shipping grommets are placed over the rotating bands, which must be perfectly clean to pass inspection, and the shells are then placed on wooden pallets to facilitate inspection, handling, packing and shipping. There follows an inspection of the shell on the shipping floor as shown in Fig. 7. After each group of shells passes inspection, the shells are stencilled, pallet tops are attached, pallets are banded and pallets are then loaded in box cars which are run into the plant to

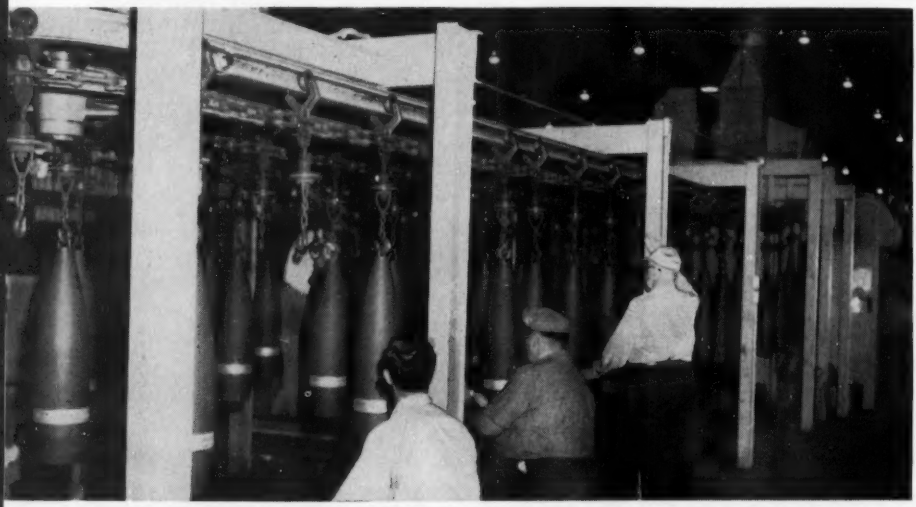

Fig. 6—After shells are painted, they travel around a drying, cooling and inspection loop of the painting conveyor. Here, rotating band shields are removed and all parts of the shell exterior surface are inspected for flaws in painting.

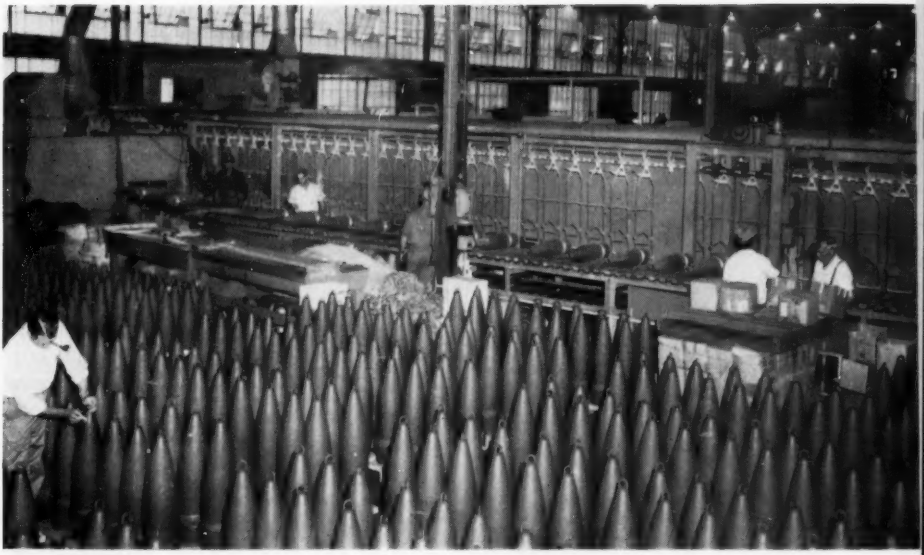

Fig. 7—Final inspector, shown at left, is making final checks of palletized shells prior to packing for shipment. This view shows the cleaning and phosphatizing machine and at left the spray booth where shell interiors are painted. Inspectors stationed along the wood slat conveyor, shown in the background, inspect shell interiors before final processing. As can be noted in this illustration, the shell manufacturing plant is well lighted and well ventilated, and the forty-foot plant ceiling makes possible the easy installation of conveyors at any desired elevation. (PRODUCTS FINISHING Staff Photos).

speed loading operations.

ACF management can take great credit for bringing this shell manufacturing and finishing plant to its present high degree of efficiency. However, the process is still under critical study to find ways of increasing production and effecting further economies.

★ ★ ★

A new revised color code was released to industry recently. It uses three new colors to warn workers against potential dangers, including a high-visibility purple to indicate radiation hazards. The other new colors are: orange to designate dangerous parts of machines or energized equipment, and to emphasize dangers from exposed or unguarded parts of machines; and blue as a warning against operating machines while under repair.—"Dylines and Bylines," a publication of the American Cyanamid Company.

★ ★ ★

Nickel plating, which was developed on a practical basis in England about 1870, was one of the earliest commercial uses for the metal nickel. Employed principally to protect other materials from atmospheric corrosion, it remains an important application for nickel.

Maintenance Operations

By FRED G. BRUNE
Metal Finishing Engineer
Chrysler Jet Engine Plant

★ ★ ★

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FRED G. BRUNE has been concerned with plating operations for some 25 years. Graduate of the University of Cincinnati with the degree of Chemical Engineer, Mr. Brune has been associated with the Lockland Div., The Electric Auto-Lite Company and Marion Industries, Division of Motor Products Corporation. He has held his present position with Chrysler Corporation for several years. He is a past-president of the Cincinnati Branch, American Electroplaters' Society.

★ ★ ★

TO OBTAIN SATISFACTORY RESULTS from large plating operations, it is necessary that both the solutions and equipment be maintained in good working condition. Many of the methods used are peculiar to an individual plant, but the basic principles can frequently be adapted by other platers and used to fit individual needs.

A common troublesome problem is the treatment of nickel solutions with nickel carbonate. It is difficult to obtain uniform mixture of the nickel carbonate throughout the solution, and the larger the volume of solution the greater the problem. One method that the writer has employed with solutions ranging in size from 3,000 to 35,000 gallons, consists of mixing a nickel carbonate slurry and the plating solution in a pump used to transfer the solution from the plating tank to a storage tank.

It requires an auxiliary slurry tank and mixer (Fig. 1) to be connected to the piping system used to transfer the nickel solution. Frequently, filters used in the plating department have slurry tanks that can be used for this purpose. A thick slurry of nickel carbonate in warm plating solution is made in the tank. Then with the proper valve arrangement it is possible to pump solution from both the plating tank and slurry tank into a storage tank. It should be noted that the regulation of the valve of the slurry tank is quite important to prevent fouling the pump with excessive carbonate; also, the slurry must be well mixed and free from lumps for the same reason.

For each plating operation it is necessary, depending upon the solution volume and amount of carbonate to be added, to work out conditions to produce the best results.

in Production Plating

Loss of plating solution during maintenance operations is costly and may also cause waste treatment problems. Proper engineering of storage units can be of considerable assistance in this type of problem. Making the storage tank 15 to 20 per cent larger than the plating tank provides room for water used to wash down the anodes and plating tank. Also, when filters are cleaned the concentrated solution can be pumped into the storage tank to be reclaimed as convenient. Naturally, the above procedure will dilute the solution but use of coils in the storage tank can evaporate off the excess water during the treatment cycle.

Filtering operations in conjunction with chemical treatments required for the proper maintenance of plating solutions is frequently an unpleasant and time-consuming burden facing the production plating man. Generally, instruction manuals read that, after the chemical treatment of the plating bath is complete, the solids should be allowed to settle and the top portion of the solution filtered off by placing the inlet hose 12 to 18 inches below the solution level, lowering the inlet hose into the solution as the liquid level decreases.

This works fine in a laboratory or with small volume solutions, but I'm sure the writer of such instructions has never been at the top of a 35,000 gallon storage tank located outside, at night, during a storm, holding a 4-inch hose as described! For example, a 35,000 gallon nickel plating solution may have 2,000 to 5,000 pounds of chemicals added for purification purposes in a storage tank located outside of a building. It is quite apparent that the time for settling the solids will be long; that if a filter hose is used, it will be fairly large (4 inches at least) and usually more than one will be required. Adjusting the hose to be just below the level in such a tank is difficult. Also, at the end of the cycle, complete removal of the solution from the tank

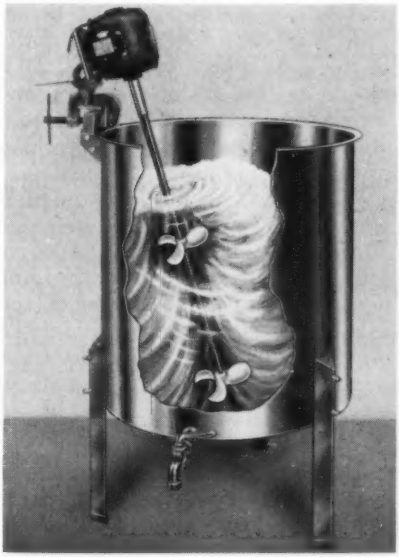

Fig. 1—"Hy-Speed" portable electric mixer mounted on mixing tank. A setup such as this may be employed to prepare a slurry of filter aid (and/or activated carbon) to be drawn into the filter circuit at a uniform rate. (Photo graph courtesy the Alsop Engineering Corporation, Milldale, Connecticut.

is impossible. Another factor is that if the cycle is stopped and solution suction of the hose broken, refilling and starting pump suction with a large hose in a partially filled tank is quite difficult.

The writer has developed a method which uses the principle of air flotation and chemical type piping by which it is possible to separate the excessive solids after treatment, and filter the solution without the cumbersome procedures listed above. The storage tank is made so as to slope toward one end of the tank and into a sump 12 to 24 inches wide, 6 to 12 inches deep. An outlet of the split nipple type (Fig. 2) is placed at one end of the sump and connected through the use of suitable valves and piping to the inlet of the filter pump.

When the chemical treatment is complete a large air hose, weighted down on the end to hold it under solution, is introduced into the tank near the sump outlet and the chemicals blown back from this point. (A one-inch air hose, with lead sheet wrapped around the end for about four or five feet is satisfactory.) Then the discharge of air is continued, so adjusted that the solids are blown away and back from the outlet. Filter operations are then started and can proceed without stoppage due to loading the filter with solids. Since it is frequently necessary to add an amount of chemicals in excess of that indicated by laboratory tests, in some cases the writer has left this material in the storage tank and used it for the next treatment.

To determine the treatment cycle needed by a plating solution, it is common to use the Hull Cell in the laboratory and then specify the production maintenance operation. Since the mixing and reaction time for large volumes of solutions vary considerably, it is recommended that a sample of the solution from the storage tank be filtered and Hull Cell tested before the chemical treatment is considered to be complete. This may be normal practice in your plant, but the writer knows of cases where the solution was tested before and after filtration, and the impurities had increased during the treatment. Be sure that when the pH is to be raised, the desired value is ob-

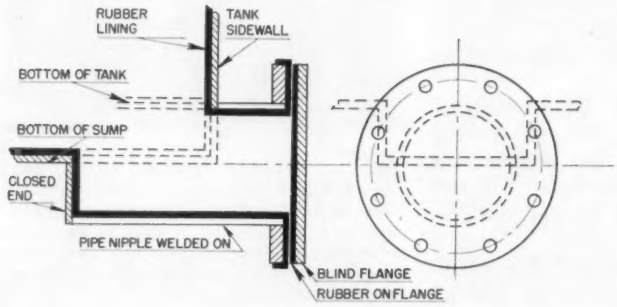

Fig. 2 — Detail of sump formed on bottom of plating tank by welding on large pipe nipple and flange fitting.

tained, and that on a carbon treatment, enough time and mixing is allowed for the reactions to occur.

Good electrical contact is essential in all plating, but is difficult to maintain with the anodes in electrocleaner tanks because of the corrosion, fumes, foam and dirt present. A positive method to ensure good contact is to use a double anode hook with a horizontal piece joining the hooks under the anode rod. A turnbuckle unit is then placed between the horizontal piece and the anode rod. The pressure from expanding the turnbuckle pulls downward on the hooks and holds them firmly in place (Fig. 3). The entire anode assembly can be nickel plated to prevent rusting and to make it easier to keep the anode clean.

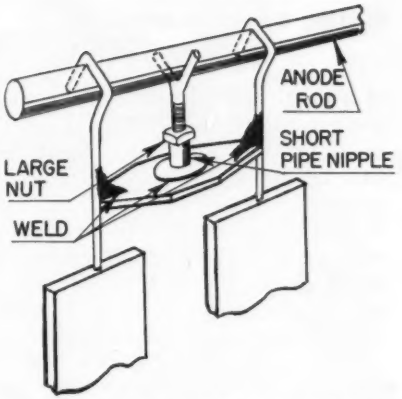

Fig. 3—Suggested method of obtaining good electrical contact between steel anode hooks and copper bus bar. Weld steel strap to connect two anode hooks. Weld a short pipe nipple in the center of the connecting strap. Weld Y-shaped part to large bolt. Assemble as shown. As the large nut is tightened down against the pipe nipple, the anode hooks are drawn firmly against the copper bus bar, making good electrical contact.

Air can be used in non-foaming cleaners to assist in removing dirt particles which have been softened but are not removed under normal conditions. Air lines in rinse tanks will provide better rinsing and/or decrease the amount of water used. A combination siphon breaker-agitator is commercially available that can be installed in water lines serving rinse tanks. The unit draws air into the water providing agitation to improve rinsing, and decreased water usage. It also prevents the possibility of backflow into the water system. It is suggested that the local public laws be checked since in many cases there are restrictions on piping public water supplies to industrial equipment.

The use of steam for heating plating solutions is quite common, but the direct return of the condensate to the boiler is a much debated subject. If your plant is returning the condensate from nickel and chromium heat transfer units, a section of heavy glass pipe installed into the return line provides a ready check point for leaks in the system.

Time costs money, and never were truer words spoken than when considering a large automatic system. Modern production operations frequently require the use of washers that use chemicals at a low concentration but are replaced often. To decrease the time needed to change solution, large drain and water fill pipes, as well as extra large heating units, should be installed. This application can also be used to advantage with rinse and other tanks that are changed frequently.

To improve the efficiency of cleaner and rinse tanks, mechanical agitation can be provided by the use

of a pump and spray nozzle so that the pressure of the pump can be applied to the work. The equipment can be designed to operate as a spray unit with solution in the bottom of the tank only; or to operate with a full tank of solution as an agitated soak. This type of tank is useful in a plant where the cleaning requirements change from day to day, or where a tough rinsing problem is encountered. It is also effective where the parts are heavily loaded with soil. A small unit can remove a lot of dirt, and the solution can be changed as needed.

With large plating machines operated at high current densities, the arcing when contacts are made or broken is a problem. When the process involved is not affected by a current interruption, an electrical arrangement can be installed to release the field switch on the generator during the short interval of time that the arcing occurs. In a process which requires a constant application of current, the amount of arcing can be decreased by removing part or all of the anodes at the entrance and exit stations of the tank.

Handling of the large anodes used in large automatics is troublesome, particularly the heavy lead anodes in the chromium tank. On straight line type machines, the installation of a chain fall on a bridge between two monorails is a good safety feature and a man saver. On the return type of machine, the cathode carrier should be designed

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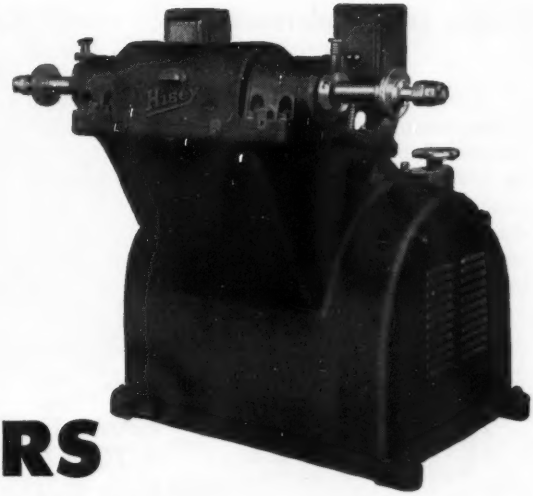

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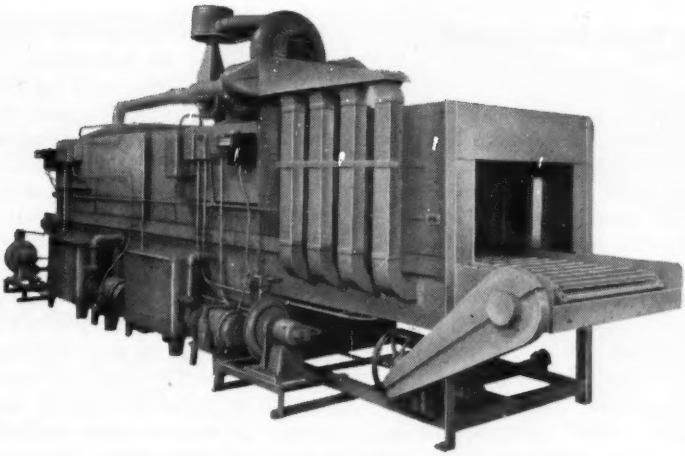
strong enough so that it can be used to carry anodes into and out of tanks in the same manner that work is processed. If necessary a chain fall can then be mounted as required to swing anodes from anode to cathode positions.

Trouble shooting with large automatic plating units means that it is necessary to locate the point at which a defect first is caused. By checking the racks as they come out of the various tanks, it is possible to determine where the defect is first visible. Then it is necessary to check if it occurs in that tank or is a result of prior treatment. Pulling up long heavy racks at various locations dripping wet with hot plating solutions is non-habit forming.

An easier method of checking how the rack looks at a given station in the tank is to lift the rack just enough to slip a piece of insulation material under the contact area (a piece of clean cardboard works well and can be marked as to position inserted). Then when the work comes out of the tank in the normal manner, the rack can be examined.

A similar system can be used to check the effect of individual anodes, particularly in chromium plating tanks where a slight change is often critical. Placing a piece



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Why not discuss your cleaning and processing problems with an experienced A-F Engineer? If one of our *"standard"* machines will not solve your problems of "quality control," please remember that A-F Engineers are specialists in *custom-built equipment.* Write without obligation—for latest booklet today.

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of insulating material (clean cardboard) between the anode hook and anode bar makes it easy to determine a trouble spot. Also, when it is necessary to process widely different sizes of parts through a machine, it is possible to alternate long and short anodes in the tank and place insulating material between the anode hook and bar of any anodes not needed at certain times.

Some plants have a problem where the water composition and pressure may vary greatly in relatively short periods of time. In most cases the pH of the water has a tendency to increase so that satisfactory rinsing is not obtained, or else an undesirable film remains on the work. Adjustment of the pH to about 6.5 will normally be beneficial.

It is suggested that a log book be maintained in the plating department in addition to a trouble and maintenance diary. No plating solution, however unusual, will play as many tricks on you as your memory, particularly when you are working under stress and pressure. An accurate record will serve two purposes: first, a ready reference in the future for solving new maintenance problems; and secondly, a record for careful analysis to be sure that the proper procedures are credited with successful operation. The well run department is the one in which maintenance operations on solutions and equipment are performed prior to the time trouble occurs. Good records serve as a reminder.

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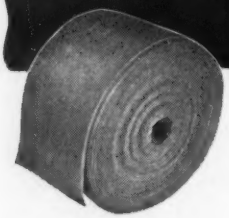
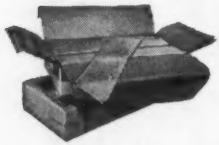


IN ROLLS
Cut off any size piece to use as needed.



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The Cut Bulk size is 18" x 36" . . . folded to 4½" x 18" for ease of handling. ALL BOND TACK CLOTH is *Spontaneous Combustion Proof, Lint-Free* and *Wax-Free*. Gives a sparkling speck-free Finish *every time*. Clean and sanitary. No waste.

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2. SOLUTION. He suggested that the manufacturer switch to the 3M Method using Three-M-ite Resin Bond Cloth Belts. This method let operators grind flash off white metal bolsters, finish brass rivets, shape and blend cocobolo wood handles and steel tangs to size—*in just one operation!*

3. RESULTS. An immediate increase in production with each belt finishing 1,900 handles. Smoother, more uniform finishes at lower unit costs. A 3M Representative can help you solve your grinding and finishing problems, too. His services are available without cost or obligation. Call him today.

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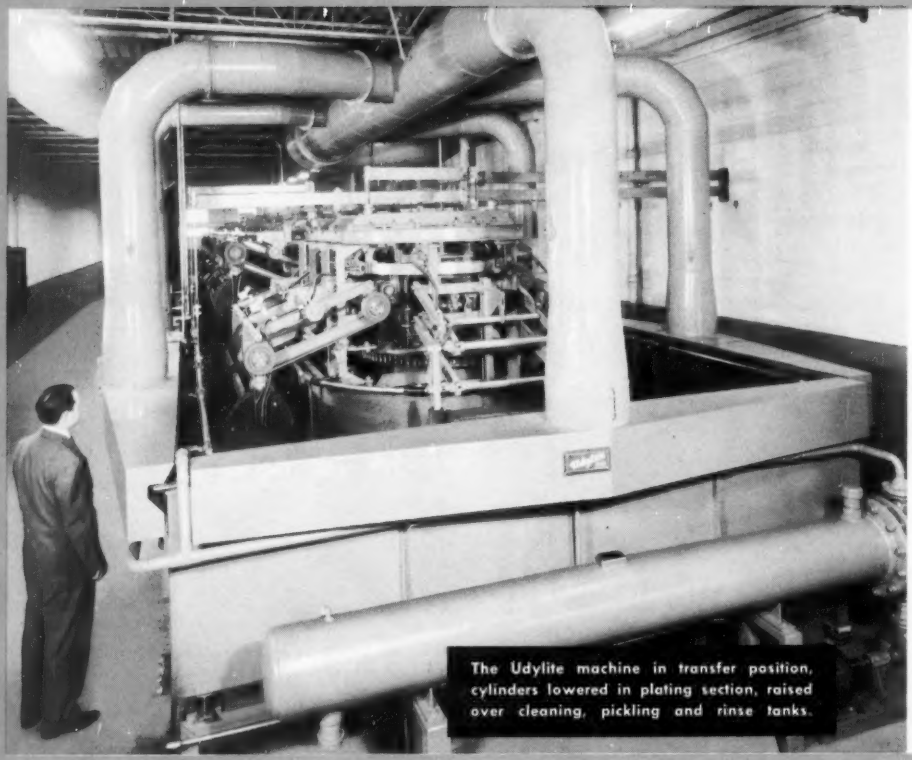


The Udylite machine in transfer position, cylinders lowered in plating section, raised over cleaning, pickling and rinse tanks.

THIS is the new Udylite full automatic barrel plating machine. A heavy duty, high production, return type unit, designed and built for any standard plating process. It uses any of the standard Udylite barrel plating cylinders.

Udylite's years of experience as the leading manufacturer of barrel equipment along with more than four years of development of this new machine bring many design features new to the plating industry.

With the Udylite full automatic barrel plater you get excellent tumbling conditions with uniform distribution of deposit as is inherent in plating with horizontal cylinders. It is flexible, and gives high productivity with specification plating.

Here are additional features: The cylinders may be operated at different speeds. As an example—one speed in cleaning and plating and a much slower speed in dichromating and subsequent tanks.

Electrically and mechanically operated, the machine is designed so that none of operating mechanism is over the tanks except the vee-belt drives. Three electrical timers located in the control panel regulate the number of cylinders per hour, the delayed set-down and the dwell when the cylinders are raised out of the tanks.

Cylinders may be left in the "Up" or "Down" positions indefinitely—all regulated from the control panel. The cylinders also rotate in the "Up" position before transfer, reducing the drag-out to a minimum.

The lift mechanism allows for the raising or lowering of any cylinder at any station independently of the rest of the cylinders. The machine may be pre-set for a given cycle within its range, but all cylinders need not follow the same cycle.

The Udylite automatic barrel plating machine offers the maximum in economy and service and the minimum in maintenance.

THE NEW *Udylite* AUTOMATIC BARREL MACHINE

FLEXIBILITY Any cylinder at any station is potentially capable of being raised or lowered independently of the rest of the cylinders. This is accomplished by delayed set-down or skip mechanisms. The machine may be pre-set by the operator for a given cycle within its range, and all the cylinders need not necessarily follow the same cycle. The number of cylinders per hour is controlled by the setting of the electric timer.

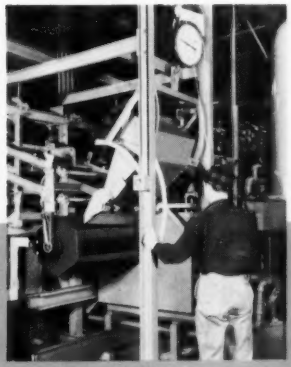
SPECIFICATION PLATING The machine may be set for a given thickness of deposit on so many square feet of work per cylinder load. The relationship between weight and surface area of the work may be established from a system of charts, and a given weight is put in the cylinder. The weighing scale at the loading station measures the load.

HIGH PRODUCTIVITY The given load is placed in the cylinder and the machine set for so many cylinders per hour, and the production is constant. To assist in faster plating, truly conforming anodes are used, and for zinc and cadmium solutions, the anodic charge is made at the bottoms of the anode containers as well as at the hooks.

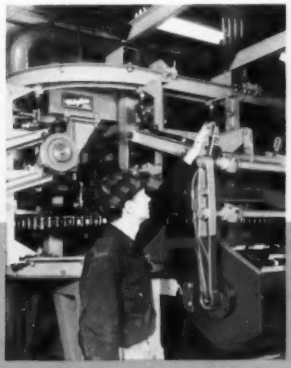
LOADING Loading is accomplished by a power operated hoist which raises the load and discharges it into a cylinder. A weighing scale is used in connection with the loading.

CYLINDERS Cylinder size is 14″ x 30″. They are very easily removed from the machine. Tumbling of the work "across" the cylinder is uniform because of the horizontal rotation and this is conducive to more uniform distribution of plate from part to part within the load. The cylinders themselves, being made of either Tempron hard rubber or acrylic resin (Lucite or Plexiglas) have excellent abrasion resistance.

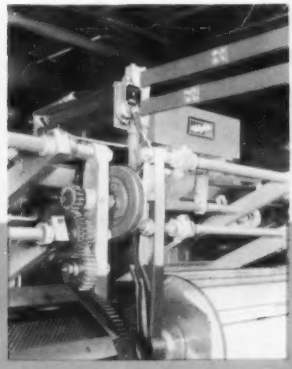
CURRENT The machine is equipped with Udylite Selenium Rectifiers. In the unit illustrated two rectifiers are used. One is 1500 ampere, 12 volt for the electrocleaners and reverse cyanide. The second is 7000 ampere, 12 to 15 volt for the plating tank. With eight cylinders plating this gives 875 amperes per cylinder. The machine may be bussed for 1000 amperes or more per station.



A view taken from the loading end of the machine. Here you will note the power-operated loading chute, the hoist, the weighing scale and the Tempron hard rubber plating cylinder. Only one man is required to operate the machine.



Operator setting skip transfer mechanism. Any cylinder at any station can be raised or lowered independently of the rest. The machine may be pre-set for a given cycle within its range, and all cylinders need not follow the same cycle.



Mechanism pre-set by the operator is here shown tripping the limit switch activating the panel board timer to delay the cylinder immersion or to hold the cylinder in the "Up" position for transfer without immersion at this station.

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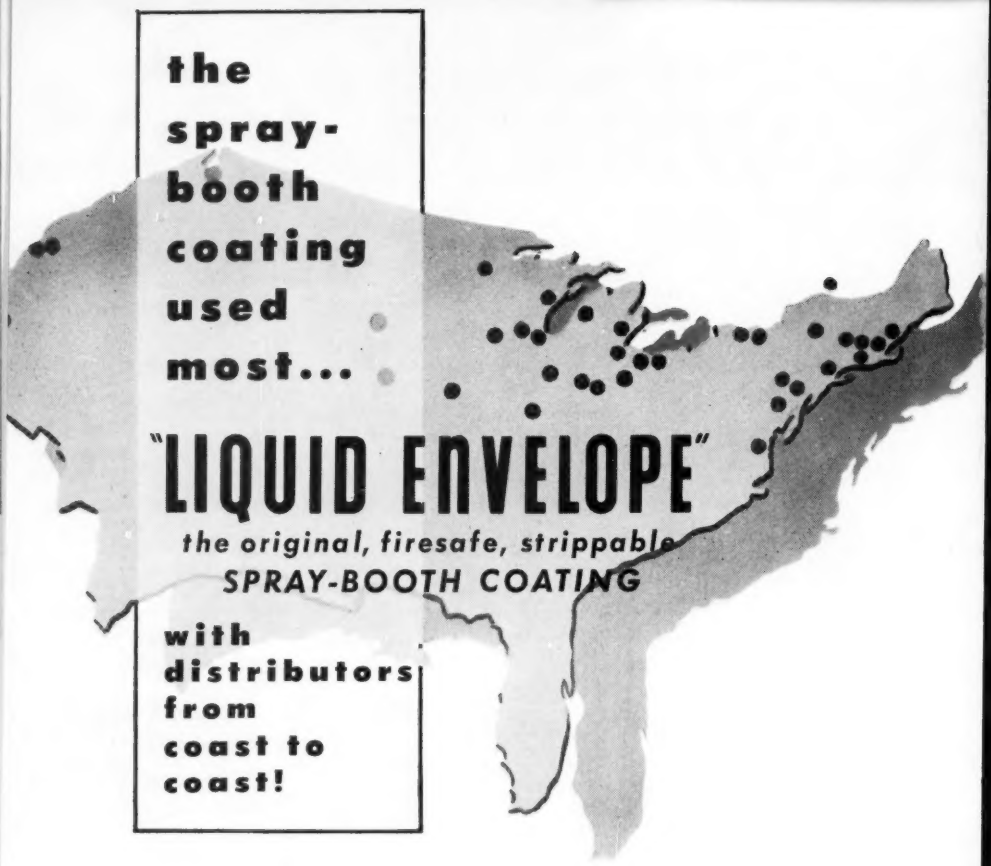

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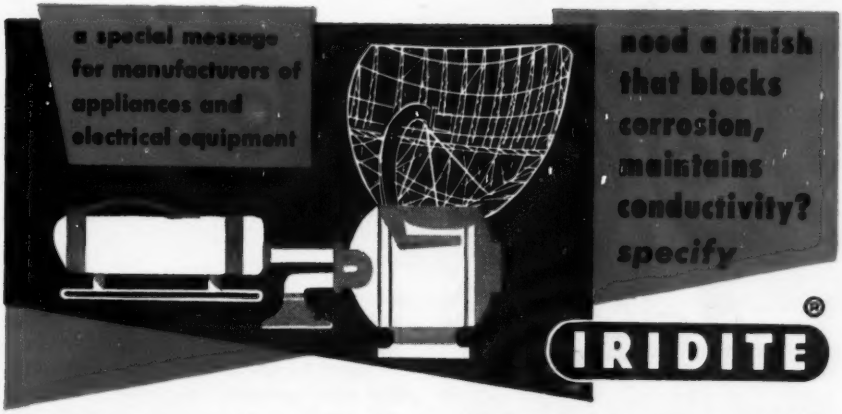

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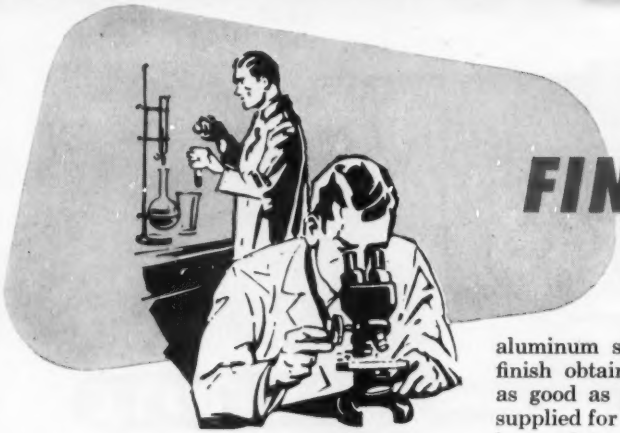

FINISHING

Question: *A question has been raised in connection with the phrase, "baked enamel," as applied to aluminum siding. We are attempting to learn if there is a definition for "baked enamel" used in metal siding, as well as information on the properties of such siding material, and processes utilized in manufacturing it.*

J. R. H.

Answer: Aluminum siding has been manufactured for some years and sold either without any surface finish for some few applications or, as is true of the majority of the siding sold, finished with a baked enamel coating. This coating is a paint product which is sprayed on and baked to form an attractive, durable surface. Although any color can be furnished, white is the color most often chosen.

Some articles published in PRODUCTS FINISHING which have described the manufacture and finishing of aluminum siding are, "Finishing Operations in a 'King-Size' Job Shop," "Chemical Surface Treatment Extends the Durability of KoolVent All-Weather Aluminum Awnings," and "Coating and Forming Aluminum Awning Panels."

As you are certainly aware, almost every paint company manufactures a coating which may be used to finish aluminum siding. The quality of the finish obtained on the siding will be as good as that of the paint product supplied for the process. Naturally, the best paint product improperly applied will result in an inferior product, but most companies in this business are well aware of the proper methods to use to secure an attractive and long lasting finish on aluminum siding.

———— *fc* ————

Question: *We are interested in the methods for obtaining a fine matte chrome plating on brass. This type of finish is common on cameras manufactured in Germany by Voigtlander, Zeiss and Iloca, and on cameras manufactured in Japan by Mamiya and Nikon.*

One method was described in the July, 1952 issue of PRODUCTS FINISHING. A reprint of this article and any other available information on this fine matte finish would be appreciated.

L. B. J.

Answer: Two completely different techniques used for producing matte chromium plated finishes are currently in use in the United States. There is available a special chromium solution which produces a white satin chromium deposit. This is one possibility which might be explored.

Another method of producing a matte finish is to process the brass through nickel plating and then subject the nickel to a fine abrasive blast.

CLINIC

This very fine abrasive wet blast produces a soft matte base on the nickel which is, of course, duplicated in the chromium plating operation which follows. This finish would be a bright matte. The white chromium plate described in the preceding paragraph would be white without being bright.

———— *fc* ————

Question: *For many years we have been silver plating various types of silverware, mainly of a vintage of the early nineteen hundreds. For the past ten years, we have been baking on a lacquer produced for that purpose over the silver plating. We have run into plenty of trouble caused by light gray spots appearing under the lacquer or brown spots in the case of a copper base metal.*

These spots vary in size from a pinhead to an inch in diameter. The only remedy we have been able to discover is to remove the lacquer; repolish the article and re-lacquer it. I would greatly appreciate it if you could possibly tell us how we can prevent these spots from appearing; the only thing we can figure out that it is caused by is the pickling solution or the bright dip in the case of hard metal.

B. C. K.

Answer: Your letter outlines a problem which has existed in the plating and finishing industry ever since silver plating and lacquering have been applied to metal products.

Three possibilities of correcting your difficulties should be explored. The first possibility is that the silver plating solution which you are using has become contaminated and that you are depositing foreign materials along with the silver. The materials will cause spotting in the silver plate after lacquering. The remedy for this situation is a thorough analysis of the silver solution and filtering, including chemical treatment, if necessary.

The second possibility is that the silver plated articles are not being thoroughly rinsed so that either cyanide chemicals remain on the surface after drying, or that chemicals from contaminated rinse water remain on the surface. It would be desirable to use demineralized water as the final rinse and it is often helpful to use successive dips in boiling and cold water ending up with a final hot rinse.

The third potential source of difficulty is, of course, in the lacquer coating applied to the plated products. We suggest that you contact a number of lacquer manufacturers for information on clear lacquers specifically formulated for application over silver plate. Since you have been using lacquer for many years, you are well aware of the fact that the lacquer must be applied under almost perfect conditions of temperature and humidity.

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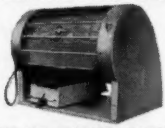
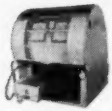


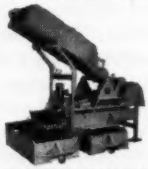
MODEL 66"—TWO COMPARTMENTS



MODEL 36"—TWO COMPARTMENTS

MODEL 32"—TWO COMPARTMENTS

MODEL 24"—TWO COMPARTMENTS



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Pearl Essence-Base For Distinctive Finishes

PEARL ESSENCE is the term applied to the silvery material collected from certain fish scales and skins. Generally this has been processed into the form of a concentrated lacquer paste which may be easily dispersed in clear lacquer by the consumer, to make a suitable surface coating. The characteristics of this coating are its beautiful luster and pearliness.

It is recorded in the literature (Harden F. Taylor, Bur. of Fisheries Bull.) that the process for collecting this fish silver material originated near Paris some three hundred years ago. According to this report a rosary and beadmaker noticed the silvery particles which collected in the bottom of a pail in which he carried freshly caught fish. This observation led him to devise means for obtaining the silvery slime in some quantity, free it from dirt and preserve it with ammonia. He named this silvery paste "essence d'orient" and dispersed it in a gelatine vehicle with which he coated his ornaments.

As time progressed the techniques improved and a small industry was established. These techniques were kept secret, however, and it was not until the end of the nineteenth century that any material scientific knowledge of it had been acquired. The pearl essence industry remained pretty well centered near Paris, although fish scales to be used for it were collected in various parts of Europe.

There are now several American producers. They depend largely for their material on a certain species of herring found in the waters off the coast of Maine and southern Canada. The greater part of the pearl essence so collected has been sold in the form of a concentrated pyroxylin paste to the costume jewelry manufacturers of the Providence, Rhode Island area and in New York.

As a result of the scarcity and

"Jeffers gets a nice finish on small parts."

DESPATCH OVEN TRIPLES SIGN PRODUCTION AT NAEGELE ADV. CO.

Despatch Water Wash Spray Booth cleans paint laden air . . . removes vapor laden fumes . . . eliminates most of labor and "down time" for cleaning.

Oven is 9' wide by 17'6" long by 9' high. Convection air heated, re-circulating type. Will accommodate 3 racks 8'x8'x30".

Oven equipped with Premix gas burner and combustion air blower. Designed for maximum 450° F. Forced exhaust system. Rigid safety and temperature controls.

The progressive Naegele Advertising Co., Minneapolis recently "at home" in greatly enlarged quarters, is creating and producing painted bulletins, highway and commercial units of all types faster than ever before. Production increases of 3 to 4 times were realized when, for finish baking, the company replaced infra-red light banks with a Despatch Finish Bake Oven of the double-end opening, batch type. Quality also is greatly improved because the oven produces a much harder paint finish. Operating at a controlled temperature of 250° F., the signs are baked for ½ hour on the prime coat and each succeeding color coat of enamel. Using lights, the drying time for similar work required 4 to 5 hours. Now 300 to 400, 3' x 8' bulletin panels are run per day while under previous methods only 80 per day were possible.

In conjunction with the oven, a Despatch Water Wash Spray Booth is employed. It measures 12' wide, 8' deep with 6' added extension panels. Water curtain is operated by a 480 GPM circulating pump.

FINISHING PROBLEM? —*CALL DESPATCH*

Despatch Finishing Systems are designed and built to finish your product better, faster and more economically. You can get a complete system or individual units, such as: Bake Ovens, Dry-off Ovens, Spray Booths, Washers, Flow Coaters, Conveyors, Air Make-up Systems. Resident engineers located in your vicinity are ready to help you with your finishing problems. Write to Dept. E.

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ONE UNIT OR A COMPLETE FINISHING SYSTEM

high price of natural pearl essence, several manufacturers developed an artificial pearl essence.

Product manufacturers have displayed increased interest in pearl essence as a finishing material.

The investigations carried on in the attempt to develop suitable preparations revealed that pearl essence is desirable solely for the optical effects it produces in the final stage of its application. It has become more generally understood that no single pearl essence product is suitable for all types of application. While the natural fish scale pearl essence certainly still produces satisfactory finish for some uses, it is not suitable for use in a finish requiring a high baking temperature.

The conclusions we have drawn are that today there is a greater awareness that pearl essence is not primarily a specific compound, but rather it is an optical effect that may be acquired by the controlled application of a variety of materials.

It is reasonable to predict that the coming years will see the development and use of a considerable number of different materials for the production of "pearlescent" finishes on many products.

An improved bonding cement for brick and tile

Superior workability, greater economy, and longer pot life are integral components of COROBOND . . . an improved synthetic resinous bonding cement for brick and tile. Acid, alkali, and solvent-proof . . . COROBOND spreads easily, will not extrude from bottom courses, and provides high mechanical strength. Liquid and powder are supplied in proper ratio to insure a perfect mix every-time. Longer pot life eliminates waste when large batches are mixed.

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A Letter from Japan

Editor's Note:

Of the many letters received from Japanese electroplaters, one received just recently is of particular interest because it outlines a number of improvements which have taken place in the Japanese electroplating industry in the past three years. It is reproduced here as a matter of interest and information to our readers.

Mr. Ezra A. Blount,
Editor
PRODUCTS FINISHING
Cincinnati, Ohio

Dear Sir:

I thank you for your cordial greeting for 1955. It is now three years since I saw you last, when I was associated with the Tokyo plant of Miyata Works, Ltd.

Three years ago I was transferred to the Matsumoto plant of Miyata Works, Ltd. in Nagano Prefecture, which you visited with Z. Sekiguchi in November, 1951.

You may be interested to hear about the present organization of our company, now known as Sanshin Matsumoto Works, which produces bicycle and motorcycle parts.

Total employees	200
Machine Shop	47
Buffing and polishing shop	44
Plating and surface finishing	28
Assembly department	20
Inspection department	15
Tool room	10
Power and maintenance	10
Purchasing and sales	26
Supervisory	5

The finishing department has about 32 per per cent total plant employees and consumes 61 per cent of the total amount of materials purchased, such as oils, cutting tools, grinding

A view of Japan's 12,395-foot-high inactive volcano, Fujiyama, from one of the high points in the Fuji-Yoshida area.

and polishing wheels, polishing compound, plating chemicals, plating metals and plating equipment and supplies. So any saving we can make in our finishing process will be an important factor in reducing the overall cost of our products.

As you will remember the old Matsumoto plant finishing shop did not contain modern plating equipment or well controlled plating solutions, but today all things are changed.

We are using a modern cyanide copper plating solution and a bright nickel plating solution, just as are many Japanese job platers. To secure a bright deposit, we use the periodic reverse method

The famous Yomiemon gate to the principal shrine at Nikko, Japan, may be seen in the center background of this photograph. The shrines in this area were first erected approximately 400 years ago. (Photo by M. Kajima, Tokyo, Japan)

similar to the PR process used in the U.S.A. As an alternating current source, we have 120 cycle alternating current. The parts being plated are agitated by means of the moving cathode method, or with air agitation.

Plating chemicals, especially sodium cyanide are greatly improved in quality, but depolarized nickel anodes of the high quality available in the United States cannot yet be obtained.

Generally speaking, our plating technique has advanced considerably, but it is still ten to twenty years behind that in the U.S.A., I believe. We are making every effort to reduce our plating costs and at the same time maintain good quality work.

We adopted barrel finishing which you discussed with us in 1951. However, lack of modern technique and research in this field makes it difficult to apply it to our product on a large scale.

I thank you for your kind advices through PRODUCTS FINISHING magazine and I will be very glad to hear from you further regarding developments in plating and finishing.

Very truly yours,

Misahiko Miyata,
Miyata Works, Ltd.

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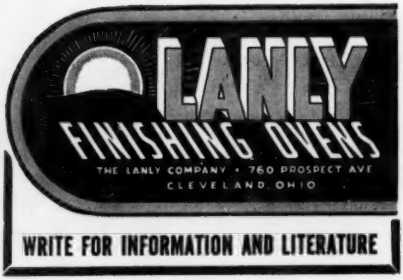
DETRO MFG. & SALES CO. INC. CULVER CITY, CALIFORNIA



meet a famous cost cutter!

• Well known from coast to coast, Unichrome Coating 218X is identified by the flexible, thick, pore-free and chemical resistant protection it puts on racks in one coat . . . protection that has minimized rack maintenance costs for its users.

This green plastisol compound cures into a tough coating that doesn't chip, crack, lift at contacts, blister . . . that won't contaminate sensitive baths, that withstands all plating and cleaning solutions, even vapor degreasing cycles. Its premium quality is undisputed, its adhesion outstanding.

Remember . . . as a company that has developed plating processes, given service on plating problems, pioneered in plastisol coatings, United Chromium can deliver exactly what a rack coating needs for maximum service in your plant.

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for better plating at less cost

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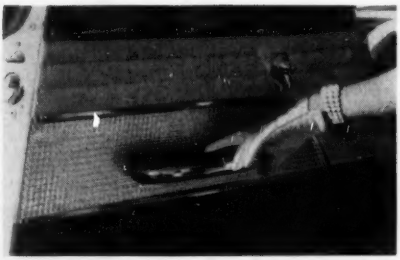
Vacuum Metallizing Polyester Film

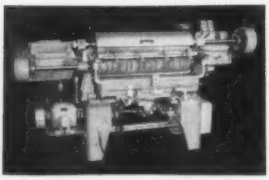


VACUUM metallizing is helping to create some of the sparkle found on interior panels of 1955 automobiles. The effect is created by vacuum metallizing DuPont's "Mylar" polyester film. The film, having a silver or gold appearance after vacuum metallizing, is bonded to fabrics, vinyls, or other materials, and then embossed in a variety of patterns. This new type of fabric is used as interior decorative trim on the 1955 Buick, Pontiac, Studebaker and Dodge.

★ ★ ★

Extensive nickel-plating installations designed and employed for the processing of large atomic energy equipment are expected to be more widely applied for commercial use. This should considerably enlarge the scope of nickel-plated products.

The CLAIR model 202, or one of seven other basic Clair models may well be the answer. Model 202 employs the same fundamental features so outstandingly characteristic of all CLAIR machines . . . Direct line actuation . . . Hydraulic and Air cylinder controls . . . Sealed Anti-Friction bearings . . . Interchangeable parts, etc.



MODEL 202 double roll assures uniform and simultaneous coverage of both sides at any pre-determined buffing pressure, over flat or contoured surfaces. "It Floats On Air".

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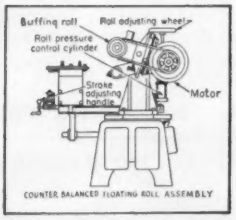

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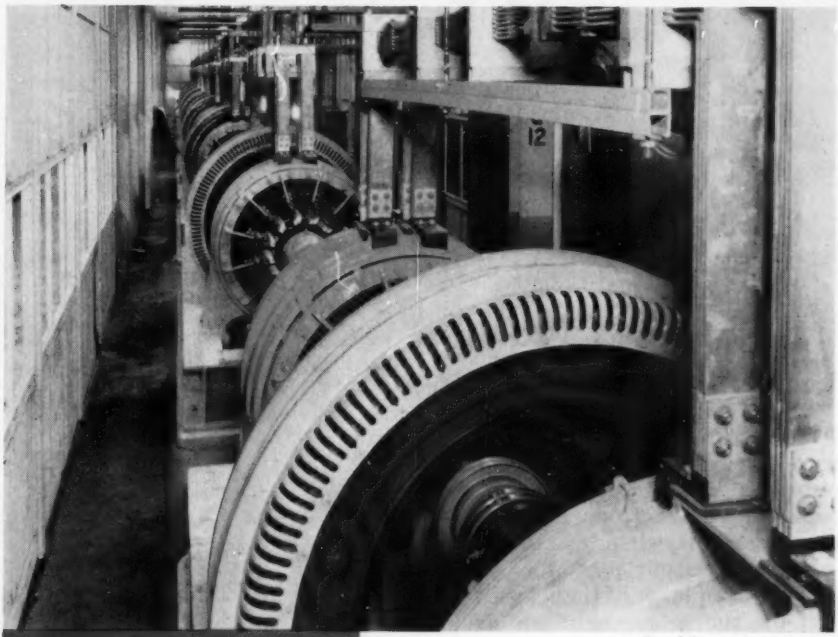

One of 5 generator rooms

SUPPLIED BY 48

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ELECTROLYTIC GENERATORS

Plating at the rate of one bumper every three seconds . . . 19,200 per day . . . allows little time for interruption. To assure a dependable, high-efficiency power supply for this mammoth, automatic plating plant, 48 brute-size Chandeysson motor generators were chosen.

Chandeysson generators were specified exclusively for this multimillion-dollar installation because of their outstanding reputation for trouble-free operation, low maintenance and high overall efficiency . . . and, for their ability to withstand repeated heavy overloads without damage of any sort.

YOU SAVE 4 WAYS...

USE LESS POWER . . . precision-built for efficiency and built-in voltage regulation.

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BE SURE OF POWER WHEN YOU NEED IT MOST... Chandeysson users report capacity in excess of published statements of 150% momentary and 125% sustained loads, without distress or damage.

ENJOY LIFETIME POWER DIVIDENDS . . . sustained, lifetime overall constant efficiency as high as 85% does not decrease with age or overload.

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Spotlighting FINISHING Progress

Tin Plating of Copper Wire

TIN COATINGS are applied to copper wires used as electrical conductors and for other purposes. The tin covering provides several beneficial effects. Copper, in metal or compound form, is deleterious to natural rubber insulation, causing premature aging or softening; a thin layer of tin between the copper and the rubber prevents this deterioration. Where a firm bond is desired between the conductor and the insulation, as in most outdoor applications, bare copper is not generally satisfactory, but must be tinned or plated with brass.

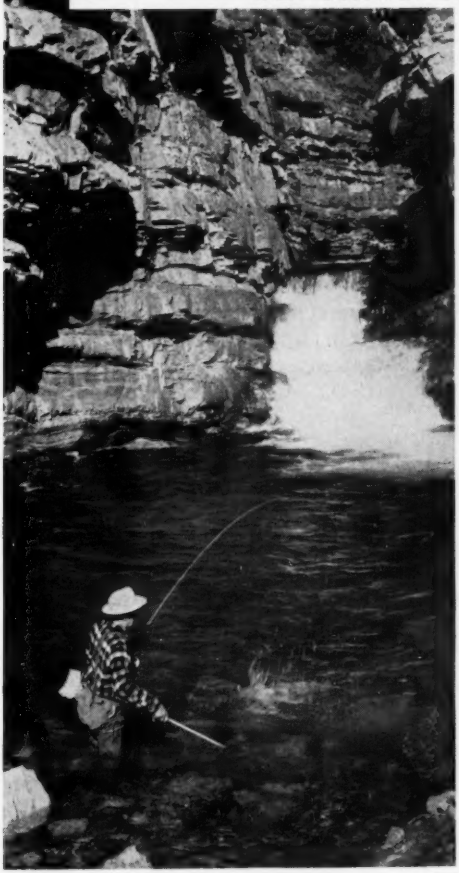
Tin coatings on copper wire also provide a lubricating effect during subsequent processing of the wire, as in stranding, cabling, or insulating operations. Tin prevents corrosion of the wire or wire products in storage or in use. Finally, a light tin coating aids in soldering and related assembly operations.

Copper wires have been tinned most commonly by a hot-dip operation. In recent years, electrotinning has been employed for many tin plating applications. Each process has certain advantages, and both will un-

By Dr. C. Fred Gurnham,
Head, Dept. of Chemical Engineering,
Michigan State College

A Monthly Digest of Current Technical Progress Indicating Significant Trends and Developments in the Finishing Industry

It takes more than a good fly to take a trout



Even the costliest fishing gear, the finest rod, the best reel and the prettiest fly can't assure catching a wily trout. It's the experience behind these accessories, that fills the creel.

There's no substitute for "Know-How" and that's particularly true in adapting metal treating chemicals to established production. It can't be gotten out of books, through black magic or out of a crystal ball. Only years of active contact, with actual manufacturing procedures, can be depended upon for satisfactory solutions of the metal protecting problems constantly confronting manufacturers.

ACP offers ideal products for removing and preventing rust on metal, chemicals to bond paint to steel, zinc, and aluminum, and pickling acid inhibitors. In addition, ACP furnishes a free service of an organization of technical experts with over 40 years' experience in solving metal preservation problems for the largest as well as the smallest operation.

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doubtedly continue in use for many years. The following discussion of electrotinning from the stannous fluoborate bath is based on information from a bulletin issued by General Chemical Division, Allied Chemical & Dye Corporation.

A principal advantage of electrodeposited tin over tin applied by hot-dipping is the greater uniformity of coating thickness or weight. Tin applied from a molten bath forms an alloy to some degree with the copper (this is a desirable feature in certain applications), hence the thickness of pure tin is apt to be variable. Variations also occur at the mechanical wiping stage of the hot-dip process. These phenomena do not affect electroplated deposits, which are therefore more uniform.

Control of coating thickness is more readily provided in the electrolytic process, since the quantity of tin deposited per foot of wire is very nearly proportional to the current applied and the time of immersion. Adjustments in the amperage can easily be made without stopping the operation. Ease of control and inherent uniformity make it possible to employ considerably thinner coatings of tin without decreasing the reliability of the deposit; as much as two thirds of the tin can be saved in some instances.

Tin electrodeposits from the stannous fluoborate bath are of fine grain, and possess a matte white color. Presumably a brighter finish could be obtained by subsequent continuous annealing, but this is not required for most technical ap-

9 TIMES MORE PAINT MILEAGE ON AUTOMOBILE CHASSIS!

STUDEBAKER gets a better, more uniform, paint job on chassis as production is increased and finishing costs are cut substantially with

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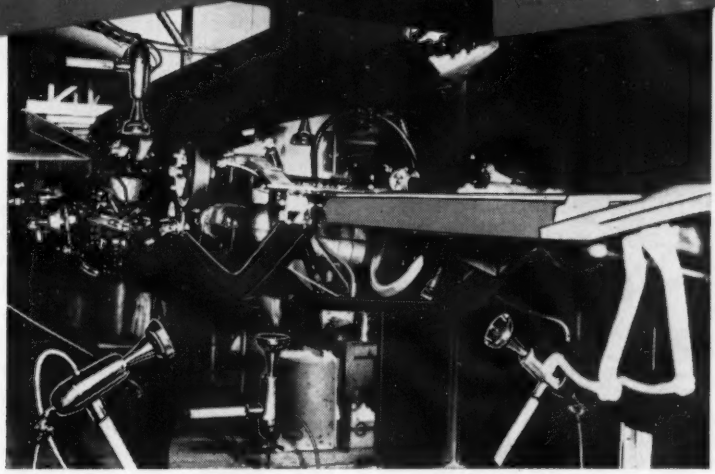

● When Studebaker Division, Studebaker-Packard Corporation switched to Ransburg No. 2 Process of Electrostatic Spray painting on their automobile chassis, paint mileage was increased 9 times.

By simply putting the paint where it's supposed to go, Studebaker cut daily paint consumption on the chassis production line from 14½ drums to 1½ drums. And, still they are painting 6 more chassis per hour with the No. 2 Process.

* *Studebaker also uses the Ransburg method to apply a heavier and more uniform primer surfacer on automobile bodies.*

In addition to getting better, more uniform coverage with the asphalt-type coating, paint and labor costs were cut 70¢ per chassis. In eliminating the former set-up with 2 water wash booths and 12 automatic spray guns, they save nearly 1000 square feet of badly needed floor space.

Another on-the-job-example of the unmatched efficiency of the Ransburg No. 2 Process in which quality of the work is improved . . . AT LESS COST!

Whatever your product—large or small—if your production justifies conveyorized painting, it's possible that one of the Ransburg electrostatic processes can do the job better, with substantial savings to you. We'll be glad to tell you about complete Ransburg services. Write to Dept. P.

Ransburg **ELECTRO-COATING CORP.**

Indianapolis 7, Indiana

RANSBURG

plications. Plated wire can also be burnished by passage through a die slightly smaller than the wire diameter. Fine wire sizes can be produced by drawing through a series of dies after electroplating; the coating, as well as the copper wire, is drawn down and it is not necessary to conduct the plating operation at the fine-wire stage.

Electrotinning Process Sequence

Many variations within the cleaning-plating-rinsing cycle are possible, and the following process is only one of several that can be used. The particular installation described here includes six main steps, all of which are in sequence on the continuously moving wire or wires: alkali electroclean, water rinse, acid pickle, water rinse, tin plating, and water rinse.

The solution used for electrocleaning may be a simple alkaline bath, or any of several special proprietary cleaners. Sodium cyanide is sometimes added (1 oz./gal.) to the solution. Electrocleaning is necessary, because the wire moves continuously through the solution and there is not sufficient time for soak cleaning. The wire is generally made anodic, and the tank or a tray in the tank serves as cathode.

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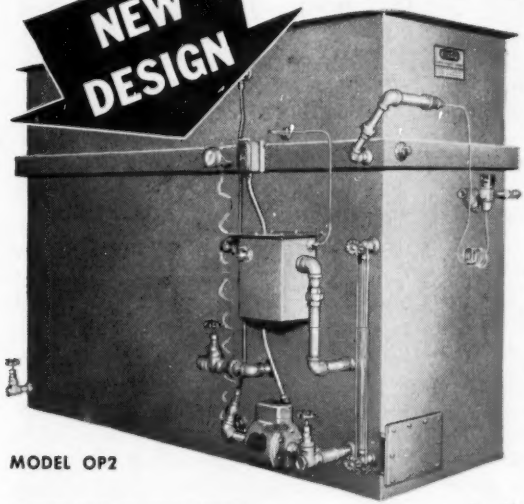

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4. **Lower height.** Working height reduced for easy operation.
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Spotlighting Finishing Progress

Pickling with fluoboric acid is recommended in preparation for fluoborate plating. A 10 per cent solution can be employed as a soak pickle, or a 2½ per cent solution is suitable for anodic cleaning. At normal wire speeds, ¾ to 1½ seconds are allowed for this operation.

Details of the stannous fluoborate solution will be given below. In a 14 foot tank and at wire speeds of 350 to 500 feet per minute, the plating time varies from 1.7 to 2.4 seconds.

Equipment

The installation described (Fig. 1) will process 10 wires at one time, or any lesser number. The wires travel parallel to each other and two inches apart horizontally, through the sequence of operations described above. Wire sizes from No. 12 to No. 24 (0.0808 to 0.0201 inch diameter) are handled satisfactorily in this manner; smaller wires are more readily produced by drawing after plating.

The process tanks have slotted ends through which the wires pass in a straight line. The liquid overflows continuously through these slots or weirs, and is collected and pumped back to the tank, thus maintaining solution levels. The wires, during processing, are just below the liquid surface, and can be readily inspected. Steel or stainless steel is used for the alkali cleaning tank, which is 6 or 8 feet long. The three rinse tanks are similar in construc-

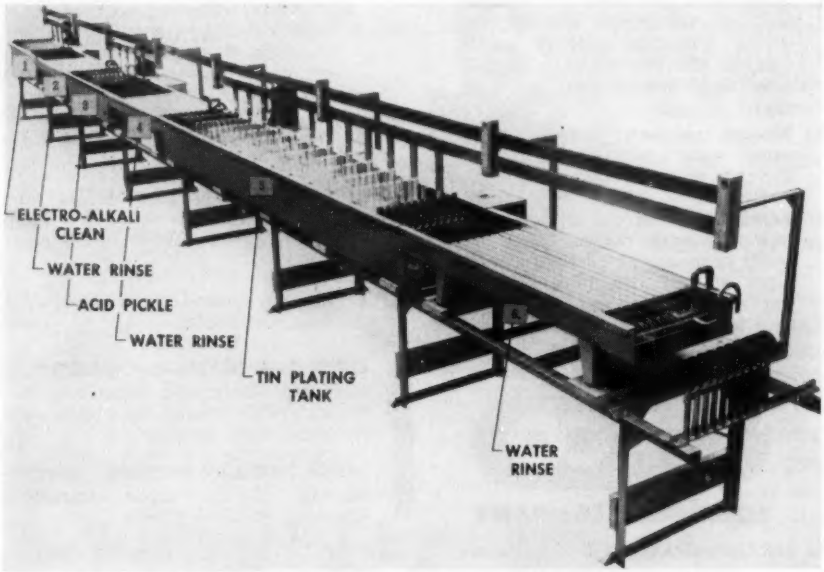

Fig. 1—Processing tanks for continuous tin plating of wire.
(Photo courtesy General Chemical Div., Allied Chemical & Dye Corp., New York 6, N. Y.)

Wheels CUT FASTER, LAST LONGER

When treated with

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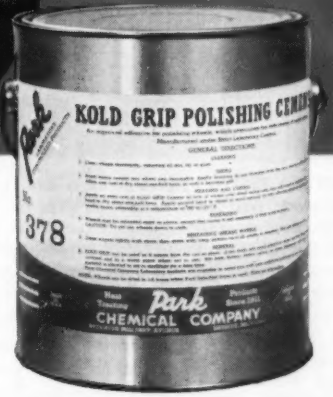
POLISHING WHEEL CEMENT



KOLD-GRIP Polishing Wheel Cement, laboratory-controlled through every step of production, will arrive at your plant *ready for use!* Viscosity is constant, regardless of normal temperature variations and the cement can be applied directly from the container . . . *without mixing or heating.* Kold-Grip is clean, odorless and very easy to handle.

Coarse or fine-grain abrasives set up right for fast cutting efficiency. Substantial savings are effected through longer over-all wheel life, fewer set-ups and reduced wheel inventory.

Wheels dry rapidly, are unaffected by humidity changes, and may be stored in any convenient plant area.

Let our polishing engineer demonstrate Kold-Grip for you, or send for free sample, telling us the metal to be polished, grain sizes to be used, and drying facilities available. We can help you if we hear from you.

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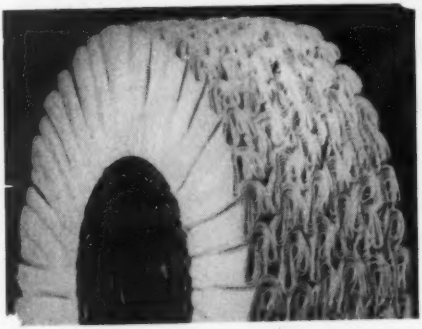
Churchill Finger-Buff* gives

Superior Results on all COLORING OPERATIONS



EXHAUSTIVELY TESTED by present users and in our laboratory, this newly developed Churchill Buff #200 gives exceptional results on all coloring operations, particularly in aluminum, brass, copper, zinc, and stainless steel. This Buff is especially adaptable for unusual shapes and contours and can be made to your specifications with any type of bias-cut cloth.

- Churchill Finger-Buffs* are competitively priced. Produced in all sizes from 6" to 18" diameters. For complete information write your problem.

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tion; they contain wooden trays with longitudinal slots through which the individual wires move countercurrent to jets of water.

The acid pickle tank is of steel or stainless steel, lined with rubber or synthetic lining materials. It is 6 to 8 feet in length. For electrolytic pickling, carbon plates are used as cathodes.

The tin plating tank is of steel or stainless steel, also lined. The tray supporting the tin anodes is covered with rubber or other tank lining materials except for the electrical contact surface.

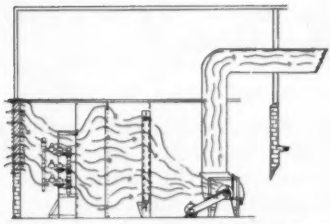
As the wire leaves each tank, it passes through either a mechanical or an air wiper or both. These wipers help to reduce dragout and dragin between tanks. The mechanical wipers consist of diamond dies of 0.0005 inch greater diameter than the wire.

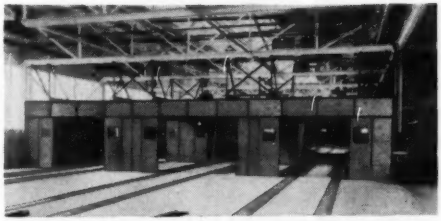
Electrical contacts have always been a problem in continuous wire plating. It is possible to operate this particular system at low deposition rates by completing the electrical circuit from the cleaning tank cathodes to the tin anodes; the wire is thus anodic in the cleaning and cathodic in the plating, without any need for direct contact to the wire. For heavy tin deposits, however, copper shoes with a heavy chromium plate are provided as sliding contacts at both ends of the plating tank.

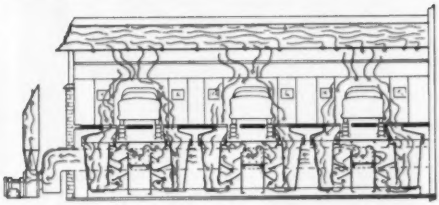
Tin Plating Solution

The solution recommended for tin plating has the following composition:

Another Problem... FINISHED







Here's an Unusual Finishing System by Peters-Dalton. It Requires an *Unusual* Disposition and Use of Spraying and Drying Equipment in a Major Automobile Plant

PETERS-DALTON are exclusively contract manufacturers. Knowing this, a major automobile company called upon us to meet its special requirements. This manufacturer wanted a Finishing System installed, of a type comparatively unknown to industry. It requires this system for maintenance of its own high standards of product finish. The installation by PETERS-DALTON now assures this company of delivery of its automobiles with 100 per cent perfect finishes. The Finishing System receives automobiles after leaving final assembly. The cars move through the upper level of the system on conveyors where any necessary repainting or touchup is made. Cleaning of paint-laden exhaust air is done by equipment in the basement level . . . heating and cleaning of supply air is completed outside the building.

Whether you require such a complicated system or one of a basically simple nature, depend on the more than quarter century of PETERS-DALTON engineering experience. We are ready and able to meet your needs—meet them with economy to you of time and costs—and on an individual basis. Find out for yourself—just write, wire or phone.

Representatives in Principal Cities

Peters-Dalton INC.
17908 Ryan Road
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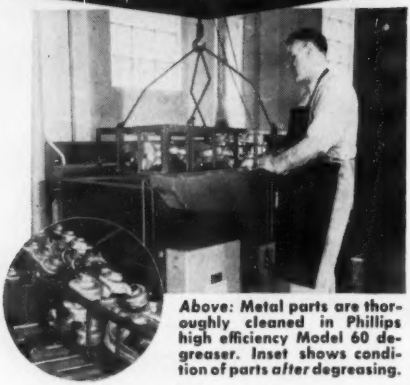
- *Hydro-Whirl Paint Spray Booths*
- *Industrial Washing Equipment*
- *Drying and Baking Ovens*
- *Hydro-Whirl Dust Collecting Systems*

ENGINEERED SERVICE

PHILLIPS

POWER TOOL MANUFACTURER CLEANS CASTINGS, STAMPINGS, MACHINED PARTS, FASTER AND MORE THOROUGHLY WITH A PHILLIPS DEGREASER



Above: Metal parts are thoroughly cleaned in Phillips high efficiency Model 60 degreaser. Inset shows condition of parts *after* degreasing.

HERE is another case illustrating the high cleaning efficiency of Phillips degreasers. Skil Corp., Chicago, uses a Phillips Model 60 electric batch-type machine to clean aluminum and iron castings, steel stampings, shafts and screw machine parts. These parts are thoroughly cleaned before painting and assembly. Among the types of soil removed are coolants, kerosene, drawing oils, and plain shop dirt.

Skil reports that the Phillips unit cleans their parts 3 to 4 times faster than their former method. Production is speeded up and better quality control is assured.

Our representative will be glad to discuss your problem with you.

SEND FOR YOUR COPY OF THIS NEW BULLETIN—Describes and illustrates Phillips engineered metal cleaning equipment.

Phillips MANUFACTURING COMPANY

3457 TOUHY AVENUE • CHICAGO 45, ILLINOIS

In Canada: Mfd. by Williams Tool Corp., Brantford, Ont.

Stannous fluoborate 200 g./l.; 26.8 oz./gal.
Free fluoboric acid 200 g./l.; 26.8 oz./gal.
Gelatin 3 g./l.; 0.4 oz./gal.
Beta-naphthol 0.5 g./l.; 0.065 oz./gal.
Catechol 0.5 g./l.; 0.065 oz./gal.

This solution is most readily prepared by dilution of the commercial concentrate, with additions of acid and other constituents.

Analytical methods are available for the total tin, stannous tin, stannic tin (by difference), and free acid. The addition agents are controlled by observing the appearance of the deposit. A regular schedule of additions should be worked out, thereby minimizing the number of additions that must be based on judgment of appearance. Catechol is an antioxidant which retards the formation of stannic tin; the frequency of its addition is best determined from the analysis for stannic salts.

The current efficiency, both anodic and cathodic, is close to 100 per cent under good operating conditions. For heavy deposits (of the order of 0.0001 inch) the bath should be heated to 120 deg. Fahrenheit.

Organic contamination becomes apparent by discoloration of the solution. It can be removed by treatment with activated carbon and filter aid, although such treatment necessitates replenishment of the organic addition agents.

Continuous wire plating is a specialized operation. It is hoped that this discussion of some of its unique features and problems will inspire improvements in the more conventional plating techniques.

Does The Complete Plating Job In A Single Cylinder!

Lucite cylinder on Lasalco's loading stand equipped with loading hopper

HIGH TEMPERATURE LUCITE CYLINDER

- Eliminates work transfers—carries the work from start to finish—speeds up plating operations—lowers production and equipment costs
- Remains impervious to all usual plating solutions
- Lasts indefinitely when used in temperatures up to 170°
- Full length 1-piece negative connection gives perfect contact. Heavy dangler imbedded in load
- Negative contact can be arranged to carry up to 800 amps.
- Quick, unobstructed loading and unloading. One-piece door has instantly removable positive-locking clamps
- Rugged construction of ½" thick Lucite. Annealing after assembly prevents all internal stress
- Capacity up to 150 pounds

Cylinders available in 24", 30", 36" and 42" lengths. Inside diameters 12" or 14" across flats.

BARREL PLATER

with LUCITE CYLINDER

- Knife switch contacts are entirely self-cleaning when cylinder is lowered into place.
- Cylinder knife switches insulated and protected by guard from overhead drippage.
- Multiple units for tackle hoist operation. Single units either tackle or hand hoist.
- Motor-driven gear drive has 3-speed selector for 2-4 and 6 r.p.m.
- Nothing plates but the load! A real money-maker that does a better job in less time at lower cost.

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IN TEXAS
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Practical Applications of modern products

Cleaning and Phosphatizing International Harvester Truck Cabs

IN THE CHATHAM, ONTARIO PLANT of the International Harvester Company, truck cabs are cleaned and phosphatized prior to painting by means of the Phosteem process, developed by the Neilson Chemical Company, Detroit, Michigan. Production varies from 15 to 25 units per hour.

The cabs, moved into the cleaning and phosphatizing area, are sprayed with Phosteem cleaning and phosphatizing solution through a steam gun (Fig. 1). Then, by turning a manual valve or an electric solenoid valve at the gun head, the operator shuts off the flow of Phosteem solution and opens the line so that he can rinse the cabs with a chromic-phosphoric acidulated rinse (Rinseprep) (Fig. 2). The units then dry and may be coated with primer, lacquer, or enamel.

The phosteem process was developed by Neilson engineers to bring the benefits of phosphatizing prior to painting metal to manufacturers who would otherwise find it difficult to employ phosphatizing. The process is specifically recommended where simultaneous cleaning and phosphatizing is desirable for preparing a metal surface for a paint finish.

Steam cleaning with alkali cleaners

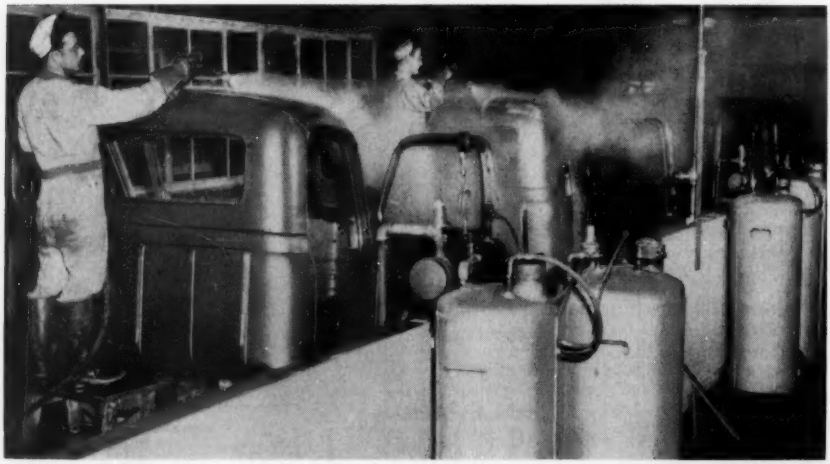
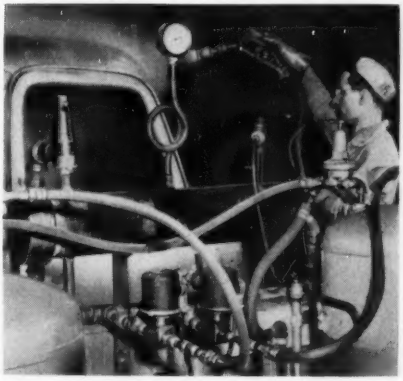


Fig. 1 — Cleaning and phosphatizing two International Harvester cabs using a tandem Phosteem unit. Each operator can clean, phosphatize and rinse the truck cab by operating a switch on the steam gun. Solution reservoirs can be seen in the right foreground of the photograph.

Fig. 2—A view of the Phosteem applicator and electric solenoid arrangement, whereby the operator can control the flow of solution from either the Phosteem reservoir or the Rinseprep reservoir by means of a switch at the gun head. (Photos courtesy Neilson Chemical Co., Detroit 7, Mich.)



has been widely used to remove oil, grease, and dirt from large objects or assemblies. Also, Neilson engineers found that iron phosphates had been used in the past in conjunction with steam lances or guns. However, no instance was found where an iron phosphate product was used in a steam gun, followed by the application of a chromic-phosphoric rinse. This sequence of operations is accomplished in the Phosteem process by means of a valve at the steam gun head.

The Phosteem process utilizes a technique which meters and controls

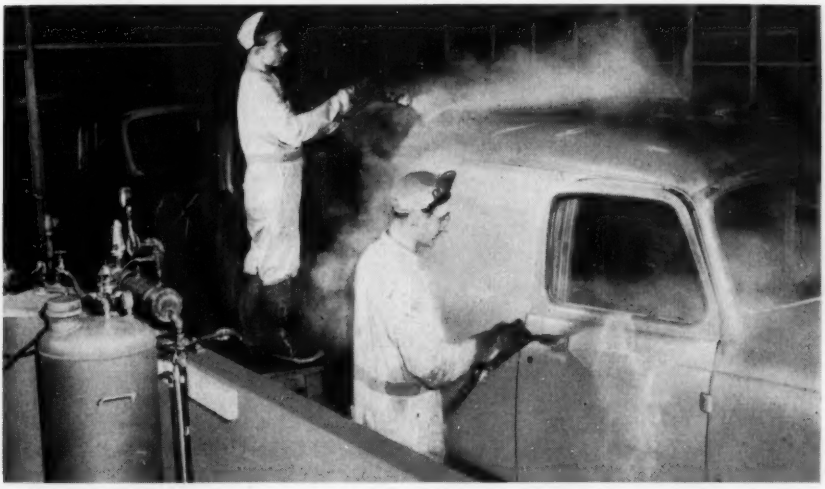


Fig. 3 — A close-up view of the treated surfaces reveals the uniform, grayish appearance of the steel.

the flow of chemicals, mixing the chemicals with the steam in the gun head. The flow rate is controlled from ½ pint to 1 quart per minute, depending upon the nature of the surface contamination to be removed.

The process is adaptable where factory steam is available. The steam gun, chemicals, and accessory equipment is supplied by Neilson Chemical Company. Where factory steam is not available, electric steam generators may be used.

★ ★ ★

Chemical Nickel Plating at American Locomotive

SINCE 1949, the American Locomotive Co., has been fabricating and nickel plating Atomic Energy Commission equipment to exacting specifications. In addition to extensive facilities for electrolytic nickel plating, Alco completed in 1954 a major installation for application of the Alcoplate process, adapted from the "Kanigen" process, a method of chemically depositing a high nickel, low phosphorus alloy. Alco is licensed to use the process by the General American Transportation Company. The term "Alcoplate" includes the pre-plating and post plating operations developed by Alco during the experience, experimentation, and control procedures which have been initiated during production of Alcoplate.

Facilities have been installed at the company's Dunkirk, N. Y. plant for application of the process by either of two different continuous flow methods. The first is primarily for internal coating and uses a closed cycle system. It is more practical and economical for plating similar sized objects. The second method uses an immersion process for both internal and external coating, and for selective coating of various parts.

Because surfaces to be plated must be chemically clean, strict cleaning procedures are used for the various metals. Steel products, for example, are immersed (after surface pretreatment) in alkaline cleaner at 180 deg. F. for ten minutes, rinsed in cold water for 10 minutes, and pickled for 10 minutes in muriatic acid at room temperature. This is followed by a second water rinse and a second im-

To page 74→

METABOND

MEANS *PROGRESS* IN RUSTPROOFING

METABOND is the only effective immersion or spray amorphous type zinc coating in the industry today.

METABOND withstands severe and consistent flexing and bending without chipping or breaking bond.

INTERNATIONAL RUSTPROOF CORPORATION

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MANUFACTURERS OF RUST PREVENTIVES AND CORROSIVE SOLVENTS

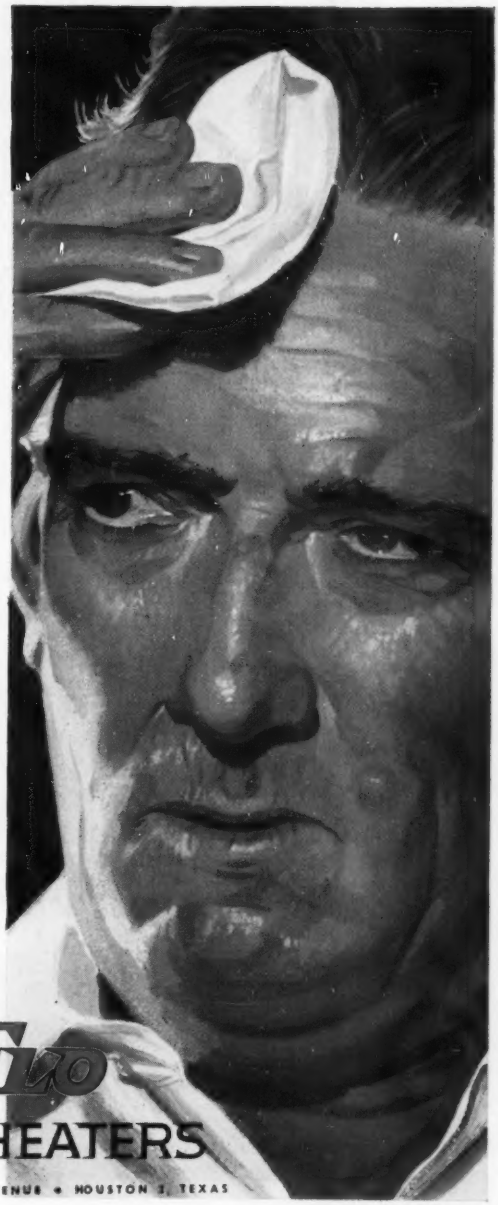
is your finishing department giving you a headache?

- Are rejects throwing your costs out of line?
- Are time and material costs eating up your profits?
- Are you getting consistent finishing room quality control?
- Are you satisfied with the appearance of your finished product?

Paint department headaches will disappear with Spee-Flo Hot Spray Heaters. Production costs will drop and consistent, all-weather quality control will be established.

We'll be glad to show you facts and figures on how other manufacturers in your field are producing better products at lower cost. Spee-Flo Hot Spray Heaters pay for themselves in the first few weeks of operation . . . they are long lived and trouble free.

LET US GIVE YOU AN ON THE JOB DEMONSTRATION

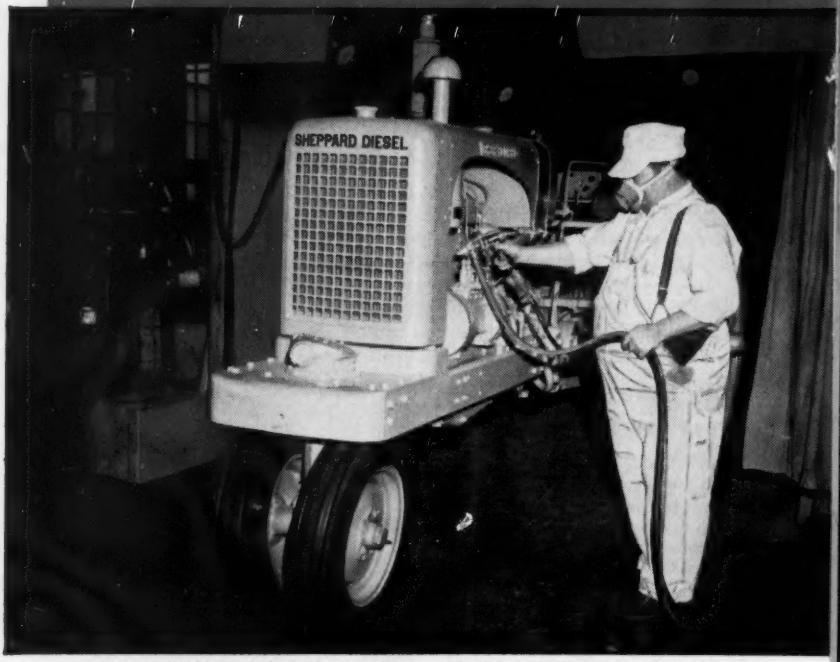


SPEE-FLO

HOT SPRAY HEATERS

SPEE-FLO CORP. 720 POLK AVENUE • HOUSTON 2, TEXAS

Sheppard Diesel



In the R. H. Sheppard plant, Diesel tractors are coated with Pittsburgh's synthetic primer and then re-coated in 30 minutes with Pittsburgh's alkyd enamels which set up so rapidly that trim enamel and decals can be applied one hour later.

PPG PITTSBURGH

PAINTS • GLASS • CHEMICALS • BRUSHES

PITTSBURGH PLATE GLASS

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

Farm Tractors *are Finished with Special Pittsburgh Enamels*

Pittsburgh contributes to the eye appeal and long life of many agricultural implements —such as the Diesel farm tractors made by the R. H. Sheppard Company, of Hanover, Pa.—by providing special enamels of unusually high quality for these products.

The protective coatings for these tractors must be extra tough and durable. Probably no other type of equipment is subjected to such a wide variety of conditions. These finishes must resist the rigors of severest weather. They must withstand the corrosive effects of fertilizers, manure and spraying compounds.

As the result of working closely with leading producers of farm machinery for many years, Pittsburgh has developed special alkyd synthetic enamels which retain their high gloss and color and are remarkably long-lasting. These finishes can be applied with unusual speed, saving time and money.

Pittsburgh's wide experience in this and many other industrial fields, may be helpful in solving *your* finishing problems. Wire, write or phone the Pittsburgh Paint plant nearest you. We'll be glad to have one of our engineers discuss your requirements with you, without cost or obligation.

PITTSBURGH PLATE GLASS CO., Industrial Paint Div., Pittsburgh, Pa. Factories: Milwaukee, Wis.; Newark, N.J.; Springdale, Pa.; Atlanta, Ga.; Houston, Texas; Torrance, Calif.; Portland, Ore. Ditzler Color Division, Detroit, Michigan. Thresher Paint & Varnish Division, Dayton, Ohio. Forbes Finishes Division, Cleveland, Ohio. M. B. Suydam Division, Pittsburgh, Pennsylvania.

PAINTS
PLASTICS • FIBER GLASS
COMPANY

mersion in alkaline cleaner.

The chemicals used in plating are mixed in make-up tanks 8 feet in diameter. The tanks are equipped with top-mounted motor-driven agitators for mixing the solution. The solution is then transferred through plastic pipe to the surge tank of the process loop. From the surge tank it is pumped through a pre-heater and a contact heater, where its temperature is raised to 215 deg. F. The solution is then pumped to the plating area, where it is placed in contact with the parts to be plated by either the immersion or internal coating method. Since the hot plating solution will deposit on almost all materials except glass, the pipes are glass or glass lined in all parts of the system from the pre-heaters to the flash evaporators.

The plating takes place through catalytic reduction of nickel by sodium hypophosphite at elevated temperature. The deposit is 93 per cent nickel and 7 per cent phosphorus. From the plating area, the spent liquid is pumped through flash evaporators, which lower the temperature quickly and remove accumulated condensate from the main heater. It then flows to the regeneration tank, where caustic, nickel sulfate, and sodium hypophosphite are introduced from chemical feed tanks by an automatic proportioning pump to restore the solution to the proper concentration. The regenerated solution is then pumped back to the surge

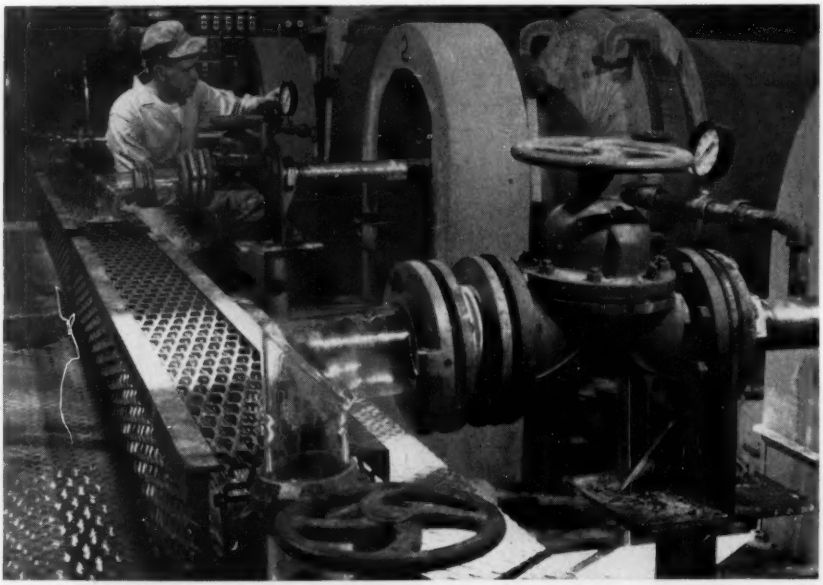


Fig. 1—Alcoplate fluid is carried through glass pipe into the vessels to be nickel plated, using a closed cycle continuous flow process.

ON FIRE!

Automatic UNIT SISAL BUFFS

. . . the *COOLEST-RUNNING* buffs on the market . . .

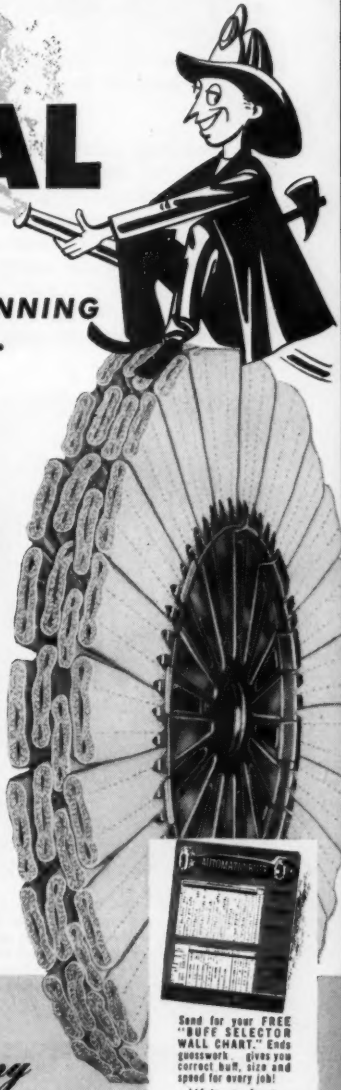
burning up the industry with a *RED-HOT* SALES RECORD!

SPECIAL SELF-COOLING DESIGN. Every fibre is cooled by constantly circulating air . . . even in highest speed operation.

FAST-CUTTING SISAL. Cloth-wrapped sisal units cut and color simultaneously . . . do it with less compound!

"EXTRA FLEXIBLE" UNITS. Individual units get into every crevice or over high spots . . . buff complete surface area!

EXCLUSIVE "PERMANIZED" CONSTRUCTION. Unique process actually locks Sisal fibres together . . . prevents loose ends, scratching and fraying!



These sensational new buffs are setting new *production* records, too—in thousands of metal finishing plants every day! For *every type* of buffing or polishing operation, Automatic UNIT SISAL Buffs *reduce costs . . . increase production* . . . because of their superior *engineered* features.

Send for your FREE "BUFF SELECTOR WALL CHART." Ends guesswork . . . gives you correct buff, size and speed for every job!

Write today!

"For the Job That's TOUGH, Use an AMERICAN BUFF"

AUTOMATIC BUFF CO. DIVISION OF

American Buff Company

2414 S. La Salle St. Chicago 16, Illinois CAlumet 5-1607

tank to complete the cycle.

After plating, parts are immersed in rinse water at room temperature. This is followed by a 10 minute immersion in hot alkaline solution, and a final water rinse.

The Alcoplate process plates at a uniform rate of from 0.6 to 1.0 mils per hour.

A complete laboratory, including facilities for testing, quality control, and experimentation has been built at the Dunkirk plant. Facilities are available for conducting chemical analyses, macro-and micro-analyses, and physical testing. Heat treating equipment and machine tools for preparing samples and production specimens are also part of the laboratory's equipment. Adherence and porosity tests are conducted for all products coated by this method. The porosity test consists of immersing the product in a bath of air agitated clear water for one hour. Any porosity will allow the base metal to corrode under these accelerated test conditions. An interesting test performed on one of the early test specimens consisted of exposing a specimen of mild steel to radioactive attack for a sufficient time to cause it to emit X rays; coating by the Alcoplate method followed, after which the sample was exposed to photosensitive film; the resulting radiographs were found to be free of darkened areas that would indicate porosity.

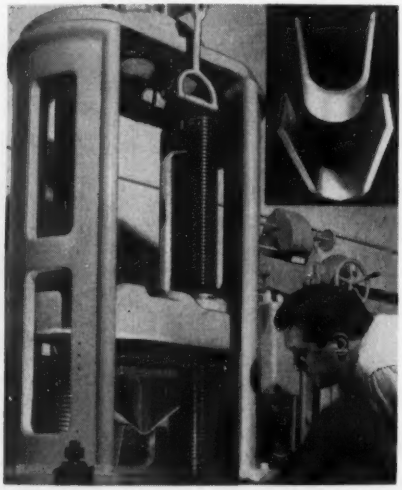


Fig. 2—Equipment installed in the Alco quality control laboratory to check adhesion of Alcoplate samples. Inset shows test samples after 180 degree reverse bend, illustrating the absence of flaking or spalling. (Photos courtesy American Locomotive Co., Schenectady, N. Y.)

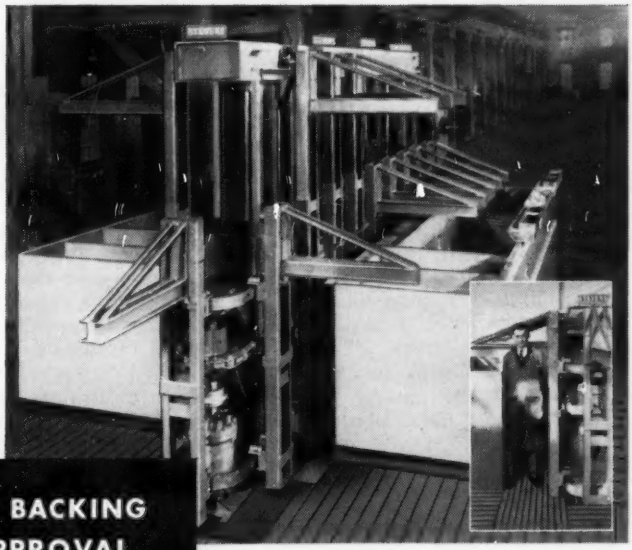
Adherence tests are made on specimens plated in a production run with the rest of the materials being processed. Four samples are used, two of which are reverse bent 40 degrees, and other two 180 degrees from the original flat condition. Any "spalling" or flaking is cause for rejection. Specimens are also prepared to check the thickness of the plate microscopically.

Alcoplate hardness averages about 500 Vickers or 48 Rockwell C. Through post plating heat treatment, hardness can be increased to 950 Vickers or about 66 Rockwell C.

Soldering of Alcoplate surfaces requires a somewhat higher temperature than usual, and care must be taken to provide a good flow of solder on the part. Welding should be done prior to plating.

The coating follows the contour of the basis metal. Thus, if the basis metal is well polished, the coating will be bright. It may be buffed to a high luster.

Thickness is very uniform. Precisely measured values show the variance



THEY ARE BACKING THEIR APPROVAL WITH ORDERS . . . . .

FOR THE NEW "STEVADOER" PLATING AND PROCESSING MACHINE *by* STEVENS

Discriminating metal finishing experts who have viewed it in operation are strong in their approval of the "Stevadoer," new automatic plating and processing machine by Stevens . . . and they are backing up their approval with orders.

The "Stevadoer" is all that its name implies – strong, rugged, with smooth vertical and horizontal movement. In addition it provides unlimited lift and heavy load capacity.

The side-arm design, pioneered by Stevens, which eliminates operating mechanism over solutions, still provides for delayed set-down mechanisms and skip tracks.

You'll like the featured "built-in" safety cat walk that can be provided between the processing tanks and the mechanism on two-row machines, making anode servicing and tank or mechanical inspection an easy matter.

The new Stevens Stev-O-Matic automatic loader and unloader working with the new "Stevadoer" offers the last word in automation.

Write today for more information on this remarkable new machine for metal finishing.

See another new Stevens engineering triumph . . . the new "Little Steve" Automatic Plating Machine at the 4th Industrial Finishing Exposition – Booth 112, Public Auditorium – June 20 to 23, Cleveland, Ohio.

BRANCHES: BUFFALO • CLEVELAND • INDIANAPOLIS • NEW HAVEN

Metal Finishing equipment and supplies from castings or stampings to finished product.

FREDERIC B. STEVENS
INCORPORATED
YOUR METAL FINISHING SUPERMARKET
DETROIT 16, MICHIGAN

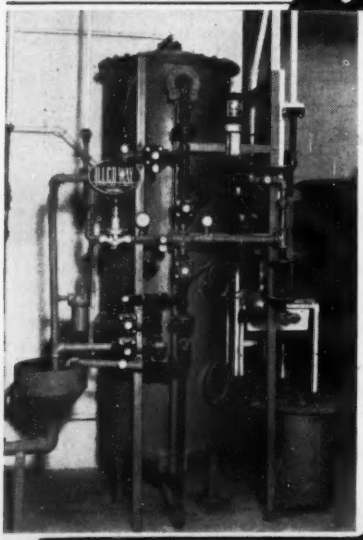
from the average thickness to be plus or minus ten per cent. That is, a part with an average thickness of 0.003 inches would measure 0.0027 inch minimum to 0.0033 inch maximum. Chemical reaction takes place wherever the solution touches the part. Thus, throwing power is excellent. Intricate shapes of products being processed have little effect upon the coating obtained; it is particularly applicable to parts having complex shapes.

Accelerated testing has proved the resistance of the plating to caustic, soaps, alcohols, fats, plastics, petroleum products, phenols, chlorinated solvents, and water (including high humidity atmospheres). It also has shown excellent resistance to higher fatty acids, such as oleic and stearic.

Unit Heater Speeds Paint Drying

According to the Industrial Unit Heater Association, Detroit 26, Michigan, the industrial unit heater is finding favor throughout industry as a flexible, economical source of space heat that can be incorporated into processing equipment to advantage. In the paint finishing department of the Majestic Company, Huntington, Indiana, a paint drying tunnel heated by a unit heater has been installed. The production of the company's building products, fireplace equipment, grates, grilles, milk and package receivers, window wells and incinerators, has been greatly increased because the drying

Specify... Perma-Line



TANK LININGS

and Minimize Corrosion Problems

ENGINEERS SPECIFY Perma-Line tank linings, Amer-Plate, ®Koroseal, Neoprene plastic, etc.—according to requirements— because experience has proven that Perma-Line know-how, workmanship and strict adherence to specifications, has resulted in long and trouble free tank operations.

MAXIMUM PROTECTION against chemicals, has been built in Perma-Line tanks of every size and shape. Among industries using Perma-Line tanks and linings are chemical plating, steel and wire, and sewage disposal plants, petroleum refineries, paper and pulp mills, etc.

YOUR INQUIRY regarding your particular tank or industrial lining problem will receive prompt attention.

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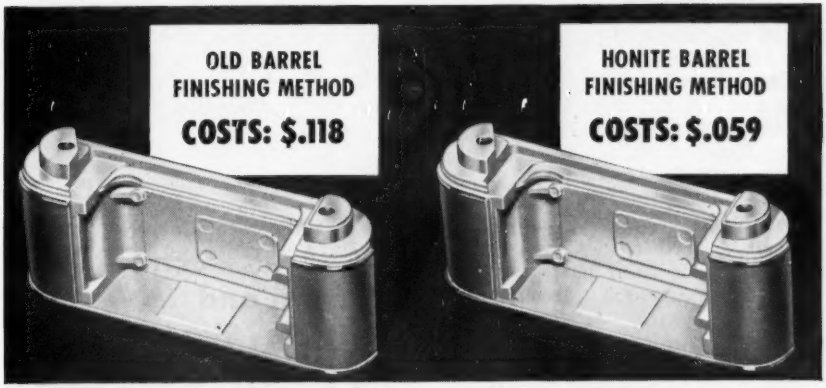
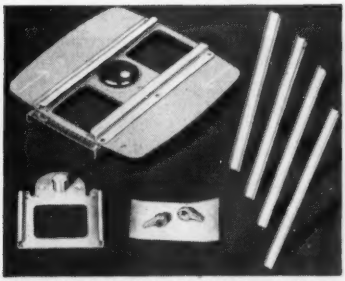
SEE HOW YOU SAVE WHEN YOU SWITCH TO Honite



50% Saving when manufacturer changes barrel finishing method



JUST A FEW of the 175 different kinds of parts that Argus processes with the HONITE Barrel Finishing Method.

Argus Cameras, Inc., Ann Arbor, Michigan, had been using barrel finishing since 1945—processing 175 different kinds of zinc, aluminum and steel camera parts such as those shown above. Last year HONITE Field Engineer D. J. Jones supervised a change to the HONITE Barrel Finishing Method.

Sample results? Recommended HONITE procedure helped cut finishing time on zinc die-cast levers from 36 hours to 15 hours—a time-saving of 58%. Costs of deburring and polishing aluminum camera-case castings were reduced from $.118 per unit to $.059.

Now—the company has found that the HONITE method cuts costs, increases production on intricate parts of all sizes. As many as 500,000 parts are processed weekly.

Your HONITE Field Engineer or nearby HONITE Distributor is a barrel finishing expert who can help *you* cut barrel finishing costs, too. Call him today!

For complete information about HONITE products, write Minnesota Mining and Mfg. Co., Dept. PF-55 for free copy of booklet, "Facts and Figures Report on HONITE Barrel Finishing".

Honite BRAND

3M COMPANY

Made in U.S.A. by Minnesota Mining and Mfg. Co. General Offices: St. Paul 6, Minn. In Canada: P.O. Box 757, London, Ontario. Export: 99 Park Ave., New York City. Makers of "SCOTCH" Pressure-sensitive Tapes, "SCOTCH" Brand Magnetic Tape, "3M" Adhesives, "Underseal" Rubberized Coating, "Scotchlite" Reflective Sheeting, "Safety-Walk" Non-slip Surfacing.

time for painted products has been reduced as a result of the installation of the drying tunnel.

The tunnel is approximately 50 feet long and is constructed as an insulated steel frame suspended from the roof. A temperature of 145 deg. F. is maintained in the tunnel by a horizontal discharge unit heater. Two conveyors pass through the tunnel carrying the painted parts. Parts covered with asphalt base paint are hung in one conveyor; enameled parts are carried by the second conveyor.

Asphalt base paint coated parts are dry after they pass through the tunnel and can be removed from the conveyor. Enameled parts continue on for a final bake in an infra red oven.

The individual response of unit heaters to heat demands is only one of the advantages of this modern adaptable heated air distributing system. Available in horizontal and vertical discharge models, unit heaters can be mounted on walls or suspended from ceilings in drying tunnels as described here or in plant paint rooms.

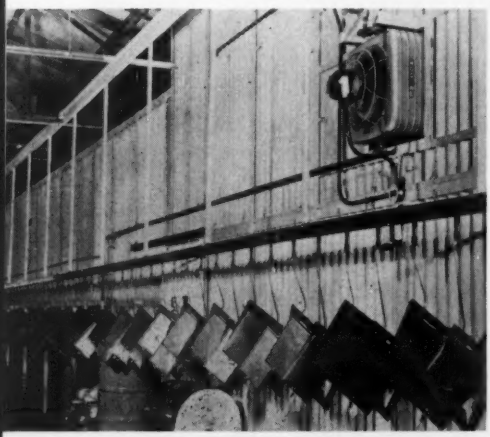


Fig. 1—A horizontal delivery unit heater is an integral part of the Majestic Company's paint drying operation. Mounted in the wall of a suspended 50 foot tunnel, the unit heater supplies heat to maintain a temperature of 145 deg. F. (Photo courtesy Modine Manufacturing Company.)

★ ★ ★

Automatic Bumper Plating Machine Features Electronic Control and Trouble Shooter

THE LARGEST automatic plating facility in the world, capable of producing an automobile bumper ever three seconds, is rapidly moving into full operation at Chevrolet's new spring and bumper plant in Livonia, Mich.

The installation plates raw stock in

Fig. 1—Electrician behind control panel above is using a test probe to check the operation of some part of the Chevrolet plant automatic bumper plating machine. Three such panels are used for checking the 25,000 parts of the machine.

How Pittsburgh knotted brush construction provides

- **Better Balance**
- **Uniform Wear**
- **Better Cleaning**
- **Longer Equipment Life**

Because of their construction, Pittsburgh "Lightning" knotted sections have *exactly the same number of wires in every knot.* As a result, you get a brush with perfect balance—one that will wear uniformly and cause less bearing—destroying vibration in the machine that drives it!

What's more, the special type of wire used in these knots is the fastest cutting, with the longest life, that can be produced. Built for the toughest applications, "Lightning" brushes are perfect for cleaning welds, removing scale or rubber, or cleaning parts where penetration brushing is needed.

This is just one example of superior Pittsburgh construction, engineered for both general and specific applications. For details of the complete line, write for free Catalog No. 54-W. Address: PITTSBURGH PLATE GLASS CO., *Brush Div.*, Dept. V-5, 3221 Frederick Ave., Baltimore 29, Md.

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three straight-line machines that total nearly a third of a mile in length. On carrier loads of 335 tons each, the steel bars go through a two-and-a-half-hour, 31-step process of cleaning, washing, rinsing and plating. They are loaded at the start and unloaded at the end by hand, but pass through the plating procedure automatically handled by elevators and shuttles.

The three lines operate independently of each other and can turn out a total of four acres of plated surface in 16 hours. Each machine is 535 feet long, 17 feet wide and 25 feet high.

Heart of the automatic operation is an electronic device that uses 710 miles of wiring to detect trouble in any one of approximately 25,000 control points along the lines.

Upright illuminated panels (Fig. 1) carry a complete diagram of the electrical layout controlling each plating machine. Each point on the diagram represents one of the 25,000 control points and is wired directly to that part of the machine.

Simply by using a test probe, much like a telephone operator working at a giant illuminated switchboard, an electrician can "tune in" instantly on any one of the thousands of points and tell how that part of the machine is performing. This eliminates traveling the length of the machine to locate trouble. Checking can be done with the power on.

The plating plant, installed and engineered by the George L. Nankervis Company of Detroit, is on two levels and covers an area equal to three football fields.

On the first level is accessory equipment such as pumps, heat exchangers, filters, air washers, storage, mixing and skim tanks. The second level contains plating machines and tanks, motor-generator sets, electrical control equipment and blowers. Plating and storage tanks hold a volume equivalent to 109 railroad tank cars.

The outlay continuously agitates, constantly filters and keeps solutions at exact temperatures. Actual plating is done at mid-point between the two levels. Tanks extend but 30 inches above the second floor, allowing for easy accessability, clear observation of the process and easy maintenance.

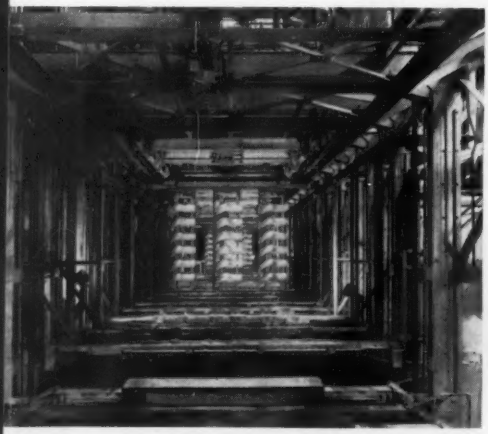
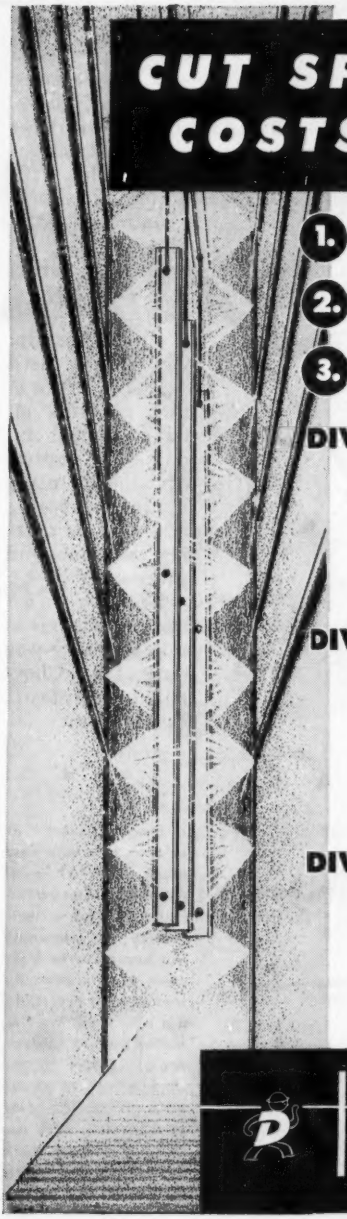


Fig. 2—A view of bumpers moving through one of the three automatic lines used in automatic bumper plating installation. Each line is 535 feet long. (Photos courtesy Chevrolet Motor Division, General Motors Corp., Detroit, Mich.)

Each Automatic Line (Fig. 2) has a completely independent copper nickel section and a chromium section. Bumpers go through 20 precleaning and plating sequences in the copper nickel sections, enter one of 15 copper plating tanks, are nickel plated in 12 tanks, buffed and sent through 10 sequences in the chromium sections.

Two automatic flat polishing machines polish, wash, phosphatize and lubricate the sheet metal prior to



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DIVERSEY No. 519:

For use as a spray wash cleaner for all ferrous and nonferrous metals. Speeds up removal of identification inks, oils, drawing and buffing compounds. Free rinsing; leaves no white film; does not corrode. Rapidly removes tacky forming compounds.

DIVERSEY No. 14:

An alkaline compound for cleaning steel. High cleaning power at low concentration —with outstanding wetting, emulsifying and deflocculating ability. Solid particle dirt is "peptized"—suspended so that it cannot redeposit or adhere to work. Keeps screens, nozzles, jets and pumps free from scale.

DIVERSEY No. 16:

An emulsion-type compound for spray-wash cleaning all metals. Non-foaming, with excellent wetting and emulsifying powers. Rinses freely. When not rinsed leaves a light film that prevents rust during inspection or overnight storage. Paint can be applied directly over film.

THE DIVERSEY CORPORATION

1820 Roscoe Street, Chicago 13, Illinois

(In Canada: The Diversey Corporation (Canada) Ltd., Port Credit, Ont.)

forming. From there, the material is transferred to six gigantic presses where bumpers are formed in advance of plating. Each press weighs 930,000 pounds and exerts up to 2,500 tons of pressure. After this, the parts pass through a series of trimming and punching presses and on to a series of automatic buffing machines. An elaborate exhaust system carries buffing residue to huge washing machines which operate like sluice boxes in mining to collect the waste particles.

The 814,000-square foot Livonia plant is more than a plating installation. The plant also houses sufficient coil and leaf spring manufacturing facilities to supply all of Chevrolet needs.

A fully equipped testing and chemical laboratory contains all the technical facilities for control of the bumper plating and spring manufacturing materials and processes.

Spring and bumper fabrication formerly was part of the Chevrolet - Detroit Forge Plant.

★ ★ ★

Manufacturers of colored products now have available at Armour Research Foundation a new service for eliminating human error from color specification by means of a recording spectrophotometer, which standardizes colors by reducing them to curves on a graph. The color service also could assist government work concerned with standardizing colors.

Du-Lite
FINISHED

The Marlin Firearms Co., "Famous for Fine Guns since 1870", has long depended on Du-Lite black oxide for an attractive finish that will be dimensionally stable throughout the life of the gun.

The Du-Lite process provides intricate precision parts with a durable, rust-resistant black oxide finish. And since Du-Lite penetrates the metal, all crevices and knurls are protected without affecting dimensions or fit.

If your target is durable, attractive, economical finishing, you'll want to know more about Du-Lite black oxide.

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Write for complete information.

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KEM LUSTRAL is locally available through Sherwin-Williams Branches throughout the country. Call your nearby Branch or write for color card and details.

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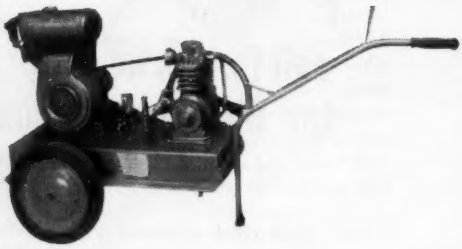
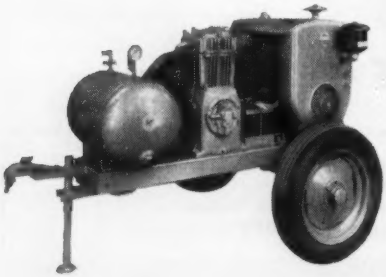
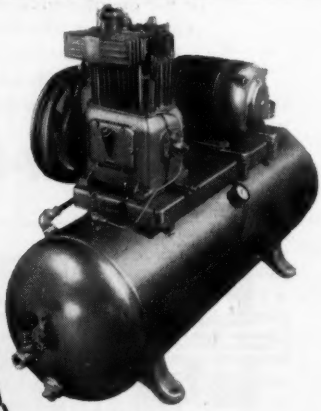


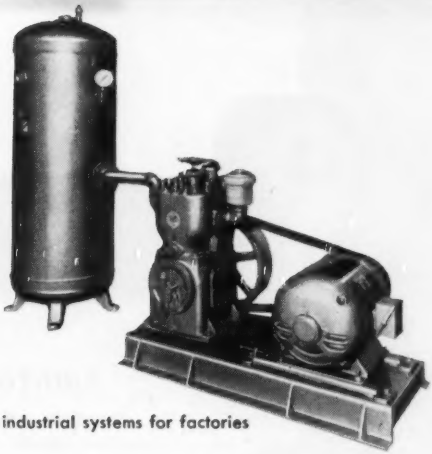
● For small one-man contractor use



● Heavy duty air compressors for use by general painting contractors



● Stationary units for small plants and garages

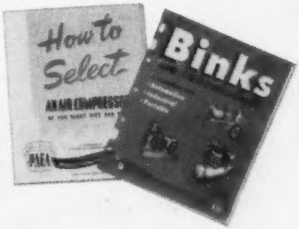


● Heavy duty industrial systems for factories

For each job there is an air compressor that is just right...one that gives you the volume and pressures you need with maximum flexibility and economy. The Binks Line of air compressors gives you a choice of 50 models from compact ¼ h.p. portable units to almost any size you need... each designed to do a specific job or to fit into a given air supply system. Before you buy or specify a new compressor, investigate the Binks Line ...it will pay you!

To be sure you get the right compressor

Ask your jobber or write direct to us for a copy of *How to select an Air Compressor* which tells you what to look for in an air compressor and *Binks Catalog 810* which shows available models, accessories, etc. Or, if you wish, a Binks Engineer will call at your plant and help you pick the right equipment to give you long service and low operating costs. No obligation.



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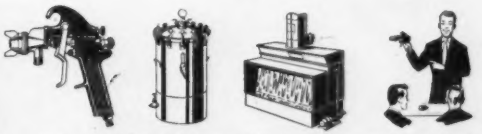

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Anti-Tarnish Solution

A solution designed to protect brass, copper, gold and silver items from corrosion has been announced by the Thor Chemical & Equipment Corp., Brooklyn 11, N. Y. Called "Thor Non-Tarnish," the material is designed to give items plated with any of these materials a longer shelf life before corrosion takes place.

The material is said to increase the adhesion of lacquers to the base metal, and thus may be used as a pretreatment for such finishes. It leaves no visible color, and is applied by immersion immediately after plating or bright dipping. It is removed by polishing or burnishing. To apply the material, dip parts in a solution of Thor Non-Tarnish, rinse in clear water, and dry.

For further data circle No. 1 on Reader Service Card inside back cover.

★ ★ ★

Barrel Finishing Machine

A standard-model barrel finishing machine with many features of deluxe models has been added to the line of "Honite" brand barrel finishing equipment, according to Minnesota Mining and Manufacturing Co., St. Paul, Minnesota.

Called the VS model, the machine has all moving parts enclosed. Safety features include a pivot-mounted gate which closes when the machine is in operation, and a magnetic brake.

All lubrication points are readily

accessible, since the motor, speed reducer, speed changer and brake are mounted in a single unit at the rear. The cylinder can be removed without disassembling the machine.

The VS model has a steel frame, with oversize pillow blocks and self-aligning bearings which are capable of carrying full loads of steel burnishing media, the company states.

There is adequate space underneath the barrel to facilitate rapid unloading, and all controls are front-mounted at a working height.

The VS model is available in three power ranges, with a 1½ h.p. motor for ordinary requirements, a 2 h.p. motor for heavy duty work, or a 3 h.p. motor for extra heavy finishing jobs.

Additional information is available from the Minnesota Mining and Manufacturing Co., Dept. PF-35, St. Paul 6, Minn., or by circling No. 2 on Reader Service Card inside back cover.

Honite Model VS Barrel Finishing Machine

Oil and Moisture Separator

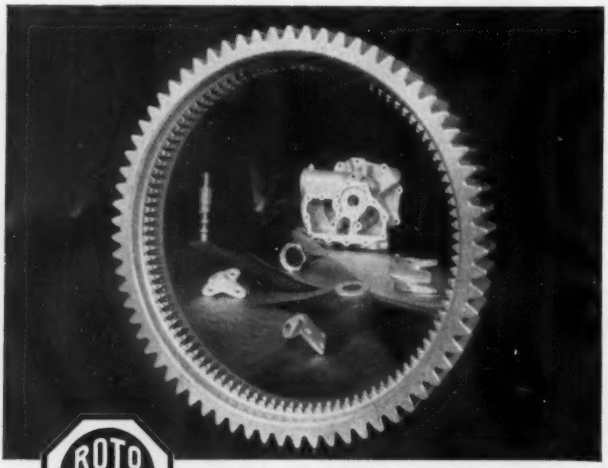
A clear plastic cylinder has been added to the line of compressed air Sta-Dri Oil and Moisture Separators manufactured by Beach Precision Parts Co., Boonton, N. J. The clear-view unit, Model No. 65 C, is 2½ inches in diameter by 12 inches long.

The plastic cylinder walls are ¼-inch thick and tested to withstand pressures in excess of 600 pounds. Model 65 C is designed for use on compressed air lines up to 250 pounds pressure. Approximate cleaning capacity of the two silk encased filters in each Sta-Dri Separator is a million cubic feet, the manufacturer states. The purpose of the transparent cylinder is to show when the filter elements should be replaced or when the moisture should be drained from the bottom of the separator.

The cylinder unit is recommended by the manufacturer for use where oil and moisture free compressed air is essential, such as in lacquering, enameling or coating operations and for precision instrument cleaning, polishing and grinding operations.

It is equipped with two filters of treated cellular material, and has drop - forged ends and quarter inch intake and outlet connections. Gage and regulator equipment and panel mountings are optional.

For further data circle No. 3 on Reader Service Card inside back cover.



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Roto-Finish maintains exact tolerances on precision parts with no significant dimensional changes. It makes possible a wide range of finishes applicable to parts of almost any size or shape; finishes a variety of materials — at big savings in manpower and costs. Without obligation, send sample unfinished parts to us. Include finished part for guide and your specifications. Roto-Finish will finish parts in its laboratory. You get a complete process report. You are guaranteed results and a finish that counts!

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- *** Rapid Dry Time**

Chlorothene is the answer to the search for a cold cleaning solvent that eliminates fire hazard—that equals carbon "tet" in cleaning power and yet is only 1/20 as toxic.* Chlorothene has no flash point—no fire point. Chlorothene permits cleaning of common metals, including aluminum with relative safety from corrosion.

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In addition to Chlorothene, your nearby Solvents and Chemicals Group Member carries a complete stock of cold cleaning and vapor degreasing solvents. Order by drum, tank wagon, transport or tank car. You're sure of speedy service . . . of products from nationally-known suppliers when you call on the Solvents and Chemicals Group.

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Dixie Solvents & Chemicals Co., Dixie Highway at Appleton Lane —Atwood 5828, Louisville 16, Ky.

Hoosier Solvents & Chemicals Corp., 1650 Luett Ave.—MElrose 8-1361, Indianapolis 22, Ind.; Nelson Road East—Anthony 0213, Fort Wayne 8, Ind.

Missouri Solvents & Chemicals Co., 419 De Soto Ave.—CArfield 1-3495, St. Louis 7, Mo.

Ohio Solvents & Chemicals Co., 3470 W. 140th St.—CLearwater 1-3770, Cleveland 11, Ohio.

Southern Solvents & Chemicals Corp., 1354 Jefferson Highway, P. O. Box 4067, Carrollton Station—Temple 4666, New Orleans 18, Louisiana.

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Western Solvents & Chemicals Co., 6472 Selkirk Ave.—WAlnut 1-6350, Detroit 11, Michigan.

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Western Solvents & Chemicals Co. (Canada) Ltd., 1454 Crawford Street—CLearwater 2-0933, Windsor, Ontario.

Wisconsin Solvents & Chemicals Corp., 1719 South 83rd St. — GReenfield 6-2630, Milwaukee, Wisconsin.

Wolverine Solvents & Chemicals Co., 1500 Century Ave., S. W.—CHerry 5-9111, Grand Rapids, Michigan.

Steam Cleaning and Phosphatizing

A method of cleaning and phosphatizing metal surfaces prior to painting, utilizing a source of live steam and a specially designed steam lance (gun), has been developed by the Neilson Chemical Co., Detroit, Mich. Designated as the Phosteem process, the method is said to provide an efficient, simple and effective method of simultaneously cleaning and phosphatizing metal surfaces so as to prepare the surfaces for subsequent paint finishing. The process is designed to be equally effective on ferrous metals, aluminum alloys, zinc coated surfaces, and any metal alloy which is to be painted.

Because of the nature of the process and the equipment required, the Phosteem operation may be set up in almost any convenient section of a manufacturing plant. Space requirements are small and it is even possible to use the Phosteem process outside the plant, weather or climate permitting.

The Phosteem process is adaptable for treating assemblies such as diesel air compressors or generator units, farm combines, metal caskets, truck trailers, auto body stampings, to cite several examples.

The Phosteem process involves the application through a steam gun of a series of cleaning and phosphatizing solutions. The operator first applies the Phosteem cleaning and phosphatizing solution. Then, by turning a manual valve or an electric solenoid valve at the gun head, he shuts off the Phosteem solution and opens the line to the chromic-phosphoric acidulated rinse (Rinseprep). After allowing sufficient time for drying, the work which has been treated is then ready for the initial coat of primer, lacquer or enamel.

Closeup of Phosteem operation showing the gun and solution selector switch at the operator's index finger.

For further data circle No. 4 on Reader Service Card inside back cover.

POCKET **HANDI-GAGE**

A MAGNETIC THICKNESS TESTER

for electrodeposited, hot-dipped and painted coatings on steel. No bigger than a fountain pen, but what a job it does! Tests plated, painted, enameled, or plastic laminated coatings in SECONDS—in the lab or on the production line. Accurate, quick and easy to use.

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"Fine, consistent performance. Both aluminum and brass parts are brighter. We've increased operating period between cleanouts by about 25 per cent."
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"Degreased parts are brighter and cleaner. Chemical control of solvent greatly simplified and . . . we have peace of mind."
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Photo-Sensitized Aluminum

A direct positive photo-sensitized aluminum has been developed by the Anken Chemical & Film Corp., Newton, New Jersey. Meta-Positive, as the product is known, can be worked from either positive or negative. It is not necessary to use a darkroom in any stage of the processing.

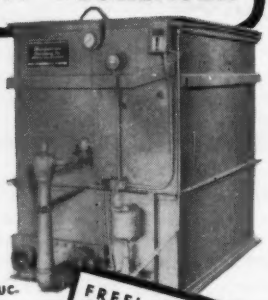
Providing a flexible metal medium, Meta-Positive is designed for use in making templates, aircraft and automobile instrument panels, and for printing and pictorial treatment on identification labels, panels, or tags for metal packaging, instrument gages, heavy machinery and power tools. In many instances, the manufacturer states, it can be used in conjunction with glass cloth.

The direct positive photographic metal is available in rolls up to 32 inches wide and in any desired lengths. It will withstand immersion in boiling water, and is not affected by extreme cold. A treatment performed during processing of the metal eliminates detrimental effects of the aluminum on photo emulsions, and the metal is also treated to retard oxidation. It will resist the effects of bending, handling, and scratching and may be cemented to other surfaces with such substances as Goodyear Pliobond.

For positive printing, exposure of a positive original is made through Ankoyello sheeting. If a positive print is to be made from a negative original,

Get LOW COST, HIGH PRODUCTION in your metal cleaning operations with the MANPRO M-121 VAPOR-SPRAY DEGREASER

CAN BE CONVERTED INTO SOLVENT STILL . . . RECOVERS AND STORES OWN SOLVENT!



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Eliminate costly delays in finishing production . . . get the cleaning results that assure thorough removal of foreign matter from the base metal — install a Manpro M-121 Vapor-Spray Degreaser, with its rugged construction, ample work area, capacity, safety features, and many other advantages.

FREE! Degreaser Operating Manual — "DO's and DON'T's OF VAPOR DEGREASING." Write Today.

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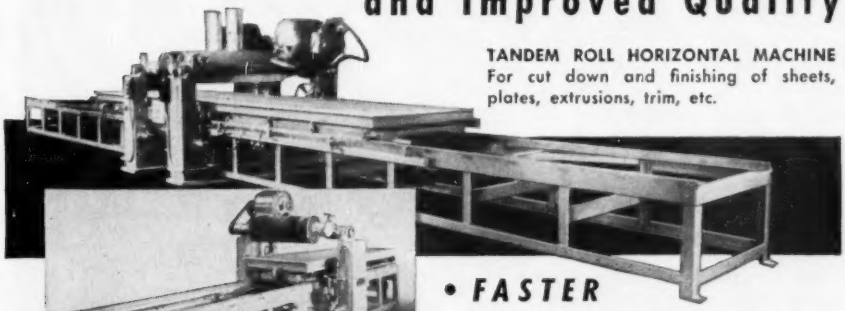
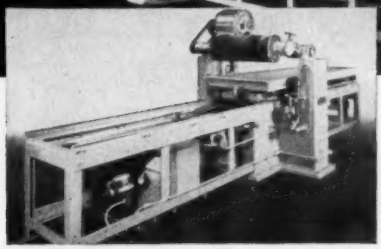
CENTRAL Polishing Machines

Pay Big Dividends in Time Saved and Improved Quality



TANDEM ROLL HORIZONTAL MACHINE
For cut down and finishing of sheets, plates, extrusions, trim, etc.



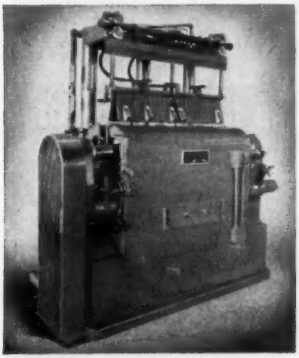
SINGLE ROLL HORIZONTAL MACHINE
Hydraulically operated, with patented hydraulic contour device. Tables on all machines may be oscillated sidewise.

- ***FASTER***
- ***MORE EFFICIENT***
- ***ECONOMICAL***

For cutting costs, improving quality and speeding up your finishing operations on sheets, plates, extrusions, rods, tubing, auto trim and many odd-shaped pieces, Central Polishing Machines will meet every production requirement as they have done so successfully wherever they have been installed.

Horizontal Machines are built in single and tandem roll models, 30", 40" and 50" widths, in any length. Are hydraulically or electro-hydraulically operated from a central operator's station and equipped with our patented hydraulic contour control. Stroke adjusted from 2" to full capacity in stepless increments. Tandem rolls permit cut down and finishing operations with one set-up.

Vertical Machines are available with 18" or 36" stroke. They are fast, economical and easy to operate. Patented hydraulic contour device permits finishing many different shapes such as hardware items, handles, cutlery, auto and appliance trim, escutcheon plates, etc. Central Vertical Machines may be set in batteries where a sequence of operations is desired. Conveyor systems and fixtures can be furnished.



VERTICAL POLISHING MACHINE
2 sizes, 18" and 36" stroke. Hydraulic contour device. Gives a high finish to many odd-shaped pieces.

Write for full information or send us samples of work to be finished.

CENTRAL MACHINE WORKS
72 Commercial St. Tel. 6-1500 Worcester 8, Mass.

the exposure process is as follows: Using black light or fluorescent tubes, the photographic metal is exposed to the original with no filter for 30 seconds in the type of box used with pre-sensitized offset plates; the original is then removed, the Meta-Positive is exposed to the same light source through a yellow filter for 10 seconds.

To develop, Type D-72 developer is used, diluted 1:1, for 45 to 60 seconds; the metal is rinsed in running water, and fixed in a non-acid bath (if acid bath is used, care must be taken to allow the print to remain for a minimum time to avoid blistering through acid attack on the aluminum); finally, it is washed.

For further information, write Richard M. Boyer, director of sales development, Anken Chemical & Film Corp., 9 Hix Ave., Newton, N. J., or circle No. 5 on Reader Service Card.

Laboratory Filter

Increased filtering capacity in a compact space, simplified operation

Laboratory Model Filter

NEWCOMB-DETROIT

PIONEERS IN ENGINEERING, MANUFACTURE AND INSTALLATION OF

INDUSTRIAL OVENS
SPRAY BOOTHS
PARTS WASHERS
DUST COLLECTORS
AIR SYSTEMS

ESTABLISHED 1912
DETROIT DIVISION—GRAND RAPIDS DIVISION—
NEWCOMB INDUSTRIES LTD., WINDSOR DIVISION

For Bulletins and Quotations, Wire, Write or Call—
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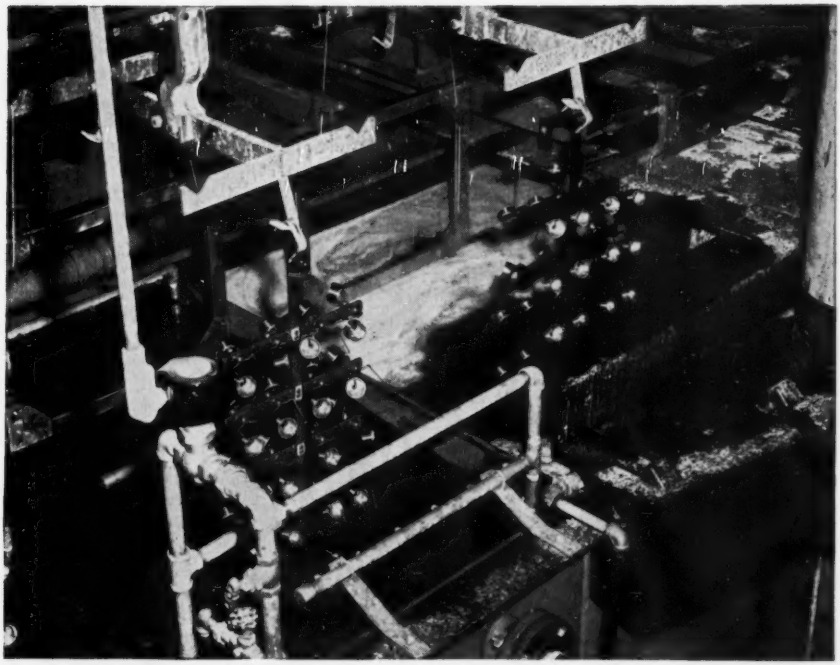


PENNSALT ELECTROCLEANER K-8

removes the extremely stubborn soils other cleaners miss

The old devils of electroplating—mill oil, smut, and buffing compound residues—are no trouble to this new cleaner. K-8 is the result of a long term research project for an ideal heavy-duty electrocleaner. It embodies a brand new concept in surface-active agents in combination with an effective detergent that works cleaning magic. This means that soil once removed *won't* redeposit if cleaner dries on the work during transfer.

Being highly alkaline, Cleaner K-8 resists neutralization by acid soils. It is an excellent electrical conductor, passing maximum current at minimum voltages. It contains special phosphates that give good rinseability, even in hard water. Pennsalt Electrocleaner K-8 works equally well on steel or copper.

Where other cleaners fail, Cleaner K-8 will give consistently fine results. Give yourself this extra margin of *confidence* in cleaning. Your Pennsalt Metal Cleaning Specialist will be glad to arrange a practical demonstration. Give him a call today. Or write: Pennsylvania Salt Mfg. Co., Metal Processing Dept., EAST: 1033 Widener Bldg., Philadelphia 7, Pa. WEST: Woolsey Bldg., 2168 Shattuck Ave., Berkeley 4, Calif.

PENNSALT CLEANER K-8 IS A TRADEMARK OF PENNSYLVANIA SALT MANUFACTURING CO.

Pennsalt Chemicals

Chemical Progress Week May 16-21

and convenient maintenance are combined in the portable Sel-Rex "Streamliner" filter, now being manufactured by Bart-Messing Corporation, of Belleville, N. J.

Designed for use in the laboratory, small production shop or pilot plant, the Sel-Rex "Streamliner" has a capacity of 250 g.p.h., and can be used with either the Sel-Rex annular element or porous stone, for acid or alkaline solutions. The unit measures 14 inches square at the base, and stands 14 inches high.

The filter is furnished with stainless steel and rubber lined components, or all iron parts. All working parts are protected from dirt and drippings by the cabinet, which serves as a firm base for the portable unit.

The Streamliner is designed to be cleaned quickly. The hand tightened cover can be removed quickly, and the entire element lifts out so that it can be washed. Reassembly, or periodic changing of filter bags is simple. Filter bags, made of Dynel, Orlon, cotton or other specified materials, can be washed and reused.

Utilizing the annular element which is characteristic of all filters in the Sel-Rex Double Duty line, the "Streamliner" has a large capacity and filtering area. The unit can be converted for use with porous stone elements. No additional parts are required for conversion.

For further data circle No. 6 on Reader Service Card inside back cover.

CYCLONE SEPARATION
FOR MORE EFFICIENT DUST COLLECTION —FILTERS LAST LONGER
Almost all industrial dusts can be collected more efficiently by Dustkop. Thirty-seven standard models *ready to use!* Reduce installation costs — save space. Write for descriptive literature.
ALSO A COMPLETE LINE OF MIST COLLECTORS
DUSTKOP®
STOPS DUST
AGET MANUFACTURING COMPANY
1390 EAST CHURCH ST., ADRIAN, MICH.

NO ANODE SLUDGE

with NEW Anaconda "PLUS-4" ANODES*

(PHOSPHORIZED COPPER)

WHY PLATING COSTS LESS!

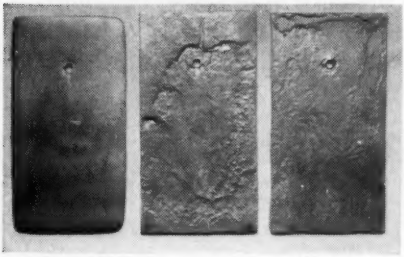
+1 no sludge

+2 no copper "build-up" in solution

+3 smoother, denser cathode deposits

+4 up to 15% *more* cathode deposits

CORRODED ANODES



Phosphorized Copper | **Fire Refined Copper** | **Electrolytic "Tough Pitch" Copper**

"Plus-4" Anode, far left, shows even, uniform corrosion. Irregular corrosion shown by other two anodes results in high scrap loss.

*For use under Patent No. 2,689,216

Here's a new copper anode for acid copper plating which eliminates "sludging off" of copper particles to form sludge in the tank, "build-up" of copper in the electrolyte, and cathode roughness due to lodgment of copper particles. No "bagging" or diaphragms are required.

In addition to overcoming these troublesome and costly acid copper plating problems, "Plus-4" Anodes plate more copper per pound of anode and corrode to a small, compact "fish" with considerable saving in scrap. "Plus-4" Anodes are furnished in all standard sizes and shapes and cost no more than ordinary rolled copper anodes.

SPECIAL TRIAL OFFER — for details on how you can get enough "Plus-4" Anodes to fill one tank, write to *The American Brass Company, Waterbury 20, Conn.* In Canada: *Anaconda American Brass Ltd., New Toronto, Ontario.*

55143

"PLUS-4" ANODES

AN

ANACONDA®

PRODUCT

made by

THE AMERICAN BRASS COMPANY

Double-Action Tumbling Compounds

A special double-action line of tumbling compounds has been developed by Lupoline Automatic Polishing Equipment Corp., 99-111 Columbus Ave., Tuckahoe, N. Y., for surface finishing stainless steel, brass, copper, and silver to a smooth high luster. The products can also be used to refinish plated parts. Samples and complete data are available to individuals writing on company letterhead.

★ ★ ★

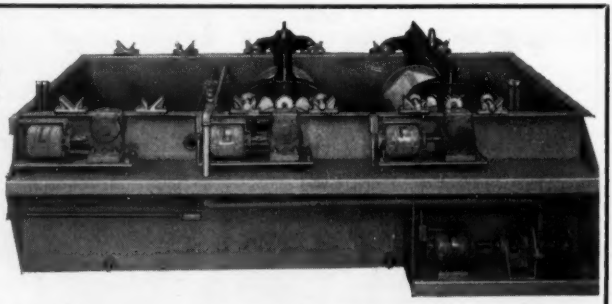
Chemical-Proofing Materials

The Ceilcote Co., Inc., Cleveland, Ohio has announced a combination of materials for protecting surfaces against chemical spillage. Three mater-

Panel of Ceilcrete B submerged for 15 minutes in perchlorethylene solvent (left), and removed (right) demonstrates by the clarity of the solvent that none of the material has been dissolved.

STUTZ

Alkali Cleaning & Rinsing Units . . .



for heavy duty—high speed Production

Stutz design in single or multiple units with or without rinsing compartment. Solution circulating pump for rapid elimination of surface grease into trap from which complete removal is made by draining of trap compartment daily.
Rotation of work in cylinders together with solution agitation of pump, provides complete cleaning in a single operation.
Cylinder drive and pump motors are 1/3 h.p. 440-220-3-60 with heater type motor control switches.
Plate or pipe coils installed.
With this type of equipment, vapor degreasing is not required.
Can also be furnished for electrolytic cleaning and with P.R. current; will do excellent removal of heavy furnace scale, rust, etc.

Write for prices and New 1955 catalog

GEORGE A. STUTZ Mfg. Co. 4410 Carroll Avenue Chicago 24, Illinois

"Complete metal finishing equipment and supplies"

Hammond OF KALAMAZOO

GOOD MACHINERY SINCE '82

MODERN *Self Contained* GRINDER-POLISHER

Hammond Variable Speed (1500 to 3000 RPM) Polishing and Buffing Lathe. Models up to 50 HP available.

Hammond Cyclone Duskolector. One of a wide line of Cyclone and Filter Types.

Hammond Backstands. 10 Air and Spring Tension Models to choose from.

Write for Catalog No. 60 showing America's most modern and complete line.

Hammond Machinery Builders INC

1622 DOUGLAS AVENUE • KALAMAZOO, MICHIGAN

ials are used to obtain the corrosion resistant surfaces; shale acidproof brick, Corobond Resin Cement, and Ceilcrete "B," a plastic base thermosetting coating.

In applying the materials, the entire surface to be protected is first coated with ⅛ inch of Ceilcrete "B." Shale brick is then set in Corobond resin cement. This provides an impervious monolithic surface.

Corobond resinous cement, which can be used with brick and tile, provides chemical and thermal resistance as well as high mechanical strength.

This combination of materials is resistant to acids and to perchlorethylene solvents, the manufacturer states.

For further data circle No. 7 on Reader Service Card inside back cover.

★ ★ ★

Polishing Machine

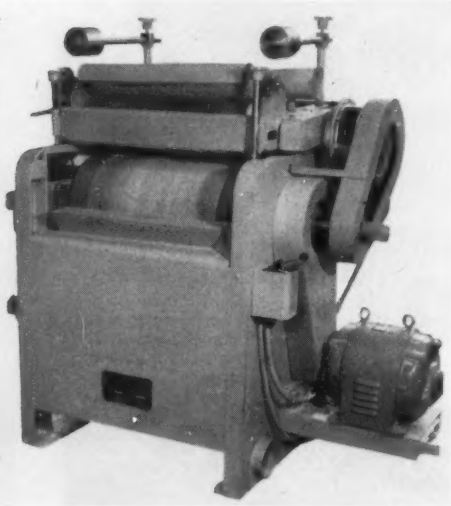
The Timesaver Smooth-O-Matic for polishing and deburring metal has been developed by Timesavers, Inc., Minneapolis 22, Minn. Equipped with an automatic feed, the machine can handle flat stock and metal sheets, single plane curved metal surfaces and modified shaped and tapered metal pieces.

The work is fed over an abrasive belt, and the machine is capable of high speed operation, it is claimed. It is suitable for ferrous and non-ferrous metals. For further information, write Timesavers, Inc., P.O. Box L, Minneapolis 22, Minn., or circle No. 8 on Reader Service Card inside back cover.

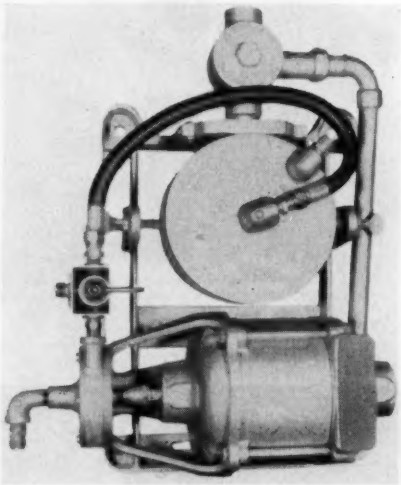
★ ★ ★

Paint Heater

The Circaflo 300 hot spray heater has been announced by the Spee-Flo Corp., Houston 2, Texas. This unit features a coilless heat exchanger and a pump which is powered with a ¼ h.p. explosion-proof electric motor.



Smooth-O-Matic Polishing Machine



Circaflo 300 Hot Spray Heater

5 POINTS FOR FLAWLESS GALVANIZING

PROMAT PRE-GALV

● If you galvanize, here are five points by which you can judge your work. If your present process does *not* include complete control over these factors, they can become five good reasons why it will pay you to write for details on the PRE-GALV system:

METAL-PREPARATION — Pre-Galv acid additive provides controlled etching without danger of over pickling . . . an oxide free surface when work enters the flux.

FLUXING—Pre-Galv flux gives maximum adherence . . . *uniform* alloying of zinc to the basis metal.

CONTROLLED DROSS FORMATION—Dross is kept to a minimum in the Pre-Galv process.

UNIFORMITY OF ALLOY LAYER—Adhesion of the zinc and ductility of work processed with Pre-Galv system is superior to that of any known system because of extent and uniformity of the alloy layer produced.

BRILLIANT, CORROSION RESISTANT COATING—Uniform flow out of metal, evenness of alloy layer insures unusual brilliance *plus* top protection for finished work.

● One of a complete line of Promat protective products that are backed by extensive research and responsible service, the Pre-Galv system is easy to use and requires no additional equipment for use. Write for bulletin G1-F today.

PROMAT *Division*

Poor & Company
851 S. Market Street
Waukegan, Illinois

The unit gives controlled temperature application of paint, and provides for the use of a higher viscosity product, thus giving a higher solids content film and fewer sags during application, it is claimed.

For further data circle No. 9 on Reader Service Card inside back cover.

★ ★ ★

Polyvinyl Chloride Lining

A material which can be used for lining of large tanks, vessels, and other equipment with unplasticized polyvinyl chloride has been announced by Kaykor Industries, Inc., Yardville, N. J.

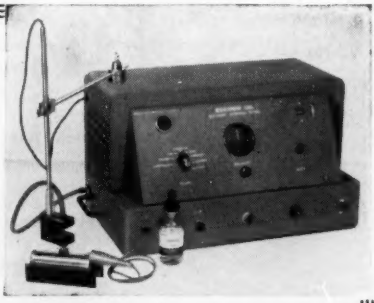
Called Vyflex FL-85, the lining is a continuous laminate of unplasticized polyvinyl chloride on one face and plasticized polyvinyl chloride on the other. Thus the desirable strength and corrosion resistance of the unplasticized material is combined with the flexibility and ability of plasticized polyvinyl chloride to be bonded to steel, concrete, or wood. The laminate, which does not require curing, can be installed quickly by qualified applicators.

In use, Vyflex FL-85 is said to resist oxidizing and non-oxidizing acids, concentrated alkalis, salts, and many corrosive organic compounds. Since the exposed face of FL-85 contains no plasticizers or modifiers there is no danger of contamination of the process reagents by the lining.

Other advantages claimed for FL-85 are the maximum operating temperature of 200 deg. F., the hardness, and the abrasion resistance.

Complete information is available from Kaykor Industries, Inc., Yardville, N. J., or by circling No. 10 on Reader Service Card inside cover.

Be sure of your
PLATING
THICKNESS
with the



KOCOUR Electronic Thickness Tester

There's no room for guessing plating thickness when you can have accurate readings quickly. The Kocour Electronic Thickness Tester determines the thickness of chromium, silver, tin, cadmium, zinc, brass, copper, nickel, lead, and other plating. Readings are direct . . . accuracy 90-95%. Write for further information . . . no cost, no obligation.

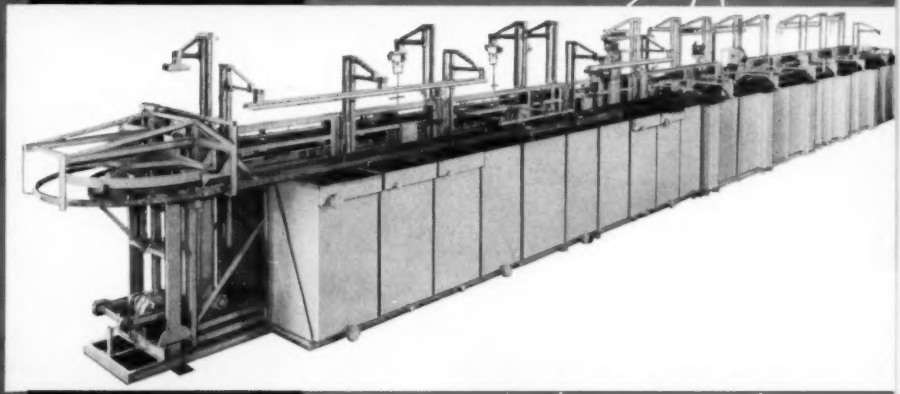
FREE! Get your reprint of "THICKNESS of ELECTRODEPOSITED COATINGS BY THE ANODIC SOLUTION METHOD" by C. F. Waite.

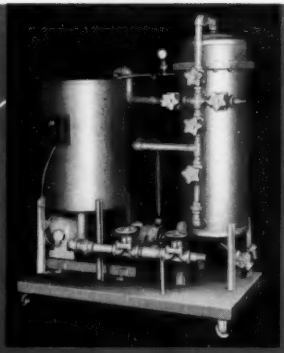
KOCOUR CO.
4814 S. St. Louis Ave.
CHICAGO 32, ILLINOIS

BULLETIN 255

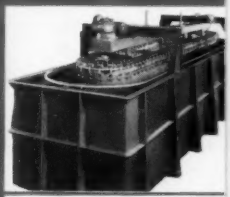
tomorrow's equipment today

WAGNER BROTHERS
automatic plating equipment and supplies





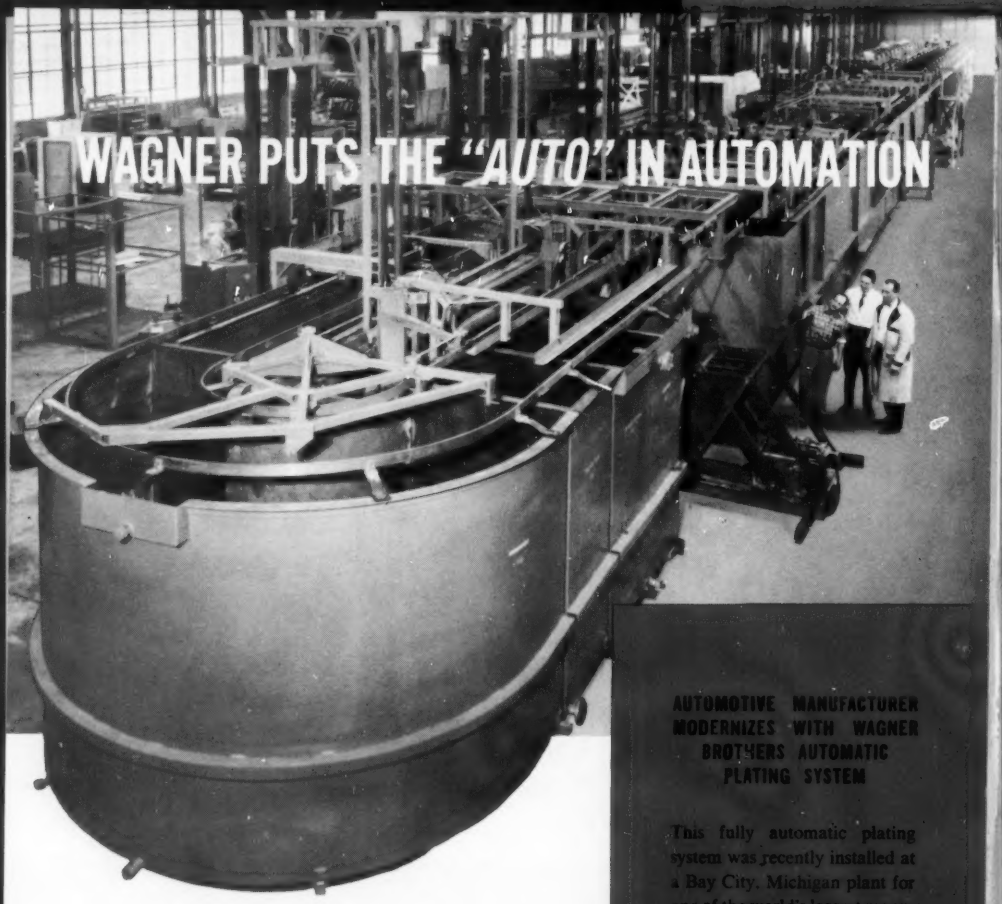
RECTIFIERS
AUTOMATICS
SEMI-AUTOMATICS
FILTERS
TANKS & LININGS
ANODES
WASTE TREATMENT SYSTEMS



400 MIDLAND AVE. • DETROIT 3, MICHIGAN

Chicago • Rochester • Cleveland • Cincinnati • Indianapolis • New York

WAGNER PUTS THE "AUTO" IN AUTOMATION



If your metal finishing operations are still being carried on with obsolete equipment which loses money for you every day, we can put you ahead of your competition, increase your profit margin.

Increased production lowers the unit cost of your parts processing operations – you spend less for labor, less for power and increase your capacity to handle more business.

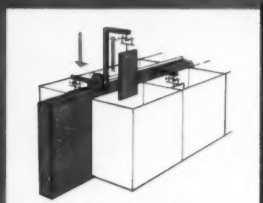
Wagner Brothers Full Automatic* Electroplating systems offer you a new and revolutionary concept in high-volume plating mechanisms – the product of years of engineering research and design refinements – for completely automatic cycling of your metal finishing operations.

*Patents Pending

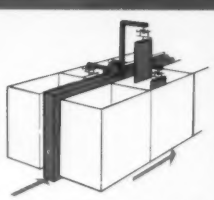
Basic design details of Wagner Brothers Automatic Plating systems are described and illustrated in Bulletin 50-54, available free upon request.

AUTOMOTIVE MANUFACTURER MODERNIZES WITH WAGNER BROTHERS AUTOMATIC PLATING SYSTEM

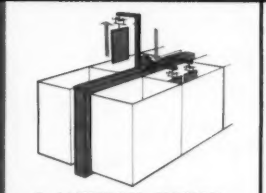
This fully automatic plating system was recently installed at a Bay City, Michigan plant for one of the world's largest manufacturers of passenger cars. The unit is 203 feet long, 11 feet wide and operates under 16-foot head-room. Die cast parts are continuously processed through a 40 station copper-nickel-chromium cycle. Production rate is 100 racks per hour, using racks 24" long, 10" wide and 64" deep. Power is furnished by one 25-HP motor. Unit is provided with a push-button central lubrication system, built-in rack stripper, vertical and horizontal agitation. Racks are automatically loaded, unloaded.



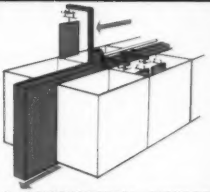
1st VERTICAL MOTION



1st HORIZONTAL MOTION



2nd VERTICAL MOTION

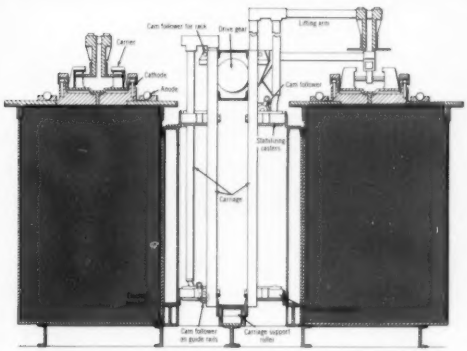


2nd HORIZONTAL MOTION

HOW IT OPERATES

All transfer and conveying mechanism is mounted on a reciprocating carriage located between the two rows of tanks. Two basic movements bring parts through the full plating cycle, one forward and reverse straight line horizontal motion and one raising and lowering vertical movement.

Plating racks are attached to work-carriers at the loading station. When the machine is started, lifting arms fixed to the carriage engage the work-carriers being transfered and lift them at all points on one side of the machine, carry them forward to the next station where they are lowered and disengaged from the lifting arm. Sequence is simultaneously produced in reverse on the opposite side so that, when lifting arms are lowered on one side, they rise on the other side.



The entire carriage mechanism is suspended on rollers moving in an oil-filled channel track. This carriage is motivated by a hydro-motor mounted at the base of the machine, fitted with a crank and link to translate the simple harmonic motion of the motor shaft to the in-line reciprocating action of the carriage.

ADVANTAGES and FEATURES

SMOOTH OPERATION — Hydromotor power principle *eases* parts through the plating cycle without jolting starts and stops. Parts never jar from work-carriers into tanks.

LOW POWER NEEDS — Almost perfect balance of work load being lifted at one time requires only *low hydraulic pressures*. One 25-HP motor operates the 203 foot automatic shown.

SIMPLE INSTALLATION — Automatics are delivered to your plant either intact or in 2 or 3 completely assembled sections, depending upon size. *You avoid costly installation.*

MINIMIZED MAINTENANCE — There are fewer moving parts, no vibrating parts, no backlash in automation, low hydraulic pressures, no alignment problems. Overload protection is built into the hydraulic pump. Working parts are easily reached without disassembly.

OTHER FEATURES —

OPERATES UNDER LOW HEAD-ROOM REQUIREMENTS • NO OIL-DRIPPING CONNECTIONS OVER TANKS • TRIPLE CONTACT CATHODE BARS FOR SMOOTH CURRENT FLOW • AUTOMATIC HEAT CONTROL FOR ACCURATE RESULTS • CENTRAL LUBRICATION SYSTEM • EASILY VARIED DRAG AND DWELL TIME

In addition to high-volume plating, the Wagner Brothers Automatic is equally-well-suited to anodizing (sulfuric and chromic), phosphate coating, etching, electropolishing, oxide coating, etc.

WAGNER
BROTHERS, INC.
400 MIDLAND • DETROIT 3, MICH.

ELECTROLYTICALLY PURE ANODES RECAST FROM *YOUR* NICKEL SCRAP

CONVERT YOUR "WORTH LESS" NICKEL SCRAP INTO PUREST ANODE FORM

A scrap bin full of useless ends, swords and stubs is "worth less" to you. But we can convert this valuable nickel into production-ready anode form, save you dollars you'd lose selling scrap to dealers and purchasing new nickel anodes.

HERE'S HOW WAGNER NICKEL RECASTING CAN BENEFIT YOU

1. **ELECTROLYTICALLY PURE ANODES** – We have a long established reputation for recasting under strictest metallurgical controls – your assurance of 99% pure nickel anodes.
2. **YOUR SCRAP, YOUR ANODES** – You get your own metal back. We do not pool scrap shipments but process each job with individual attention.
3. **MODEST HANDLING CHARGE** – You'll be amazed at how inexpensive it is to turn now "worth less" scrap into good anodes. Our fair prices have made us a leading supplier to the major job plating and manufacturing companies in the metal finishing industry.
4. **READY FOR IMMEDIATE PRODUCTION** – We'll return your nickel scrap in oval cast shapes, to the length you specify, tapped and drilled for hooks.

A WORD OF CAUTION

Unless you are *absolutely sure* of your metal broker, we advise against buying nickel scrap of dubious quality. We reserve the right to refuse junk scrap.

CONSULT YOUR NEAREST WAGNER REPRESENTATIVE OR OUR HEAD OFFICE NOW FOR AN IMMEDIATE QUOTATION

POPULAR WAGNER ANODE FORMS

COPPER	NICKEL	ZINC	TIN	BRASS	TIN-LEAD	TIN-ZINC	CADMIUM	ANODE
●		●		●				FLAT-TOP*
●	●	●	●		●	●		ISOCAST OVAL
			●			●	●	CAST BALL
●			●		●			ISOCAST SLAB
●								LECTROCOP†
●								FORGED BALL

†TRADE-MARK *REGISTERED TRADE-MARK

MAIL

WAGNER BROTHERS, INC.
400 Midland Ave.
Detroit 3, Michigan

I'd like more information describing the products checked.

- ☐ Full Automatic Plating Systems
- ☐ Semi-Automatic Platers
- ☐ Electroplating Rectifiers
- ☐ Plating Solution Filters
- ☐ Tanks and Linings
- ☐ Anodes
- ☐ Nickel Brighteners
- ☐ Waste Treatment Systems
- ☐ Nickel Recasting

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

LITHO IN U.S.A.

ROCKFORD VARNISH

RV

ROCKFORD, ILLINOIS

MANUFACTURERS OF PROTECTIVE AND DECORATIVE FINISHES

Are you approaching things a little gingerly today, like sticking your toe in first before taking the plunge? Well, if it's a finishing problem you have, may we suggest you let us make the test for you. Our laboratory facilities are extensive — and at your service. Our standard products run the gamut of known materials — but we are always willing to look for new combinations. For those of our customers who wanted them, we have developed a number of very interesting specialties. And, if this thought should perhaps be of *special interest* to you, just drop us a line . . .

Affiliate: **GORDON BARTELS CO.,** *Roller Coating Specialists*

Strippable Mask for Baking Finishes

Better Finishes & Coatings, Inc., has announced a masking material which may be stripped easily after baking operations at 400 deg. F. for 15 minutes. Thus this material is well suited to applications where it is necessary to mask certain areas prior to the application of baking enamels. The material can be applied by spray or brush, and produces a film approximately 4 mils thick, the manufacturer states.

Technical data and samples may be obtained from Better Finishes & Coatings, Inc., 268 Doremus Ave., Newark 5, N. J.

For further data circle No. 11 on Reader Service Card inside back cover.

★ ★ ★

Pearlescent Finish

Nacromer, the key ingredient in a spray applied finish which produces an attractive, hammered appearance with a metallic lustre, has been announced by the Mearl Corporation, 153 Waverly Pl., New York 14, N. Y. Hamm-Ore-Flex, which is formulated with this material, is being produced by Orelite Products Corp., Lodi, N. J.

Available as an air dry or a baking finish, formulas are designed to fit specific applications. Nacromer, the ingredient which is used to produce the qualities of "depth" and lustre in this finish, contains no metallic powders. Colors are available in a wide range, to the user's specifications.

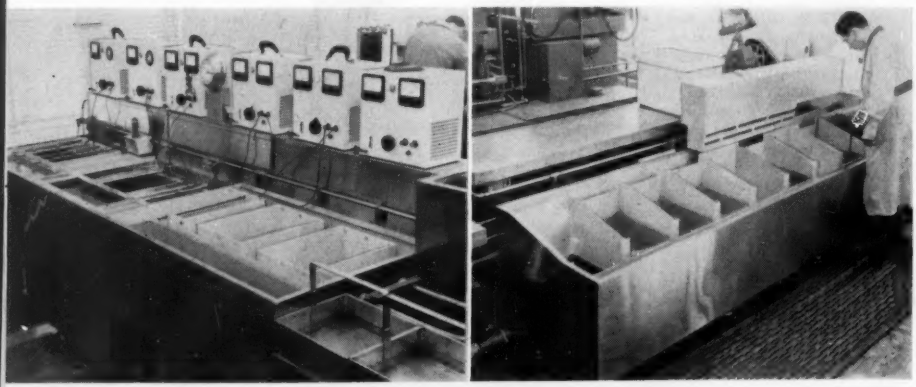
Hamm-Ore-Flex is suitable for application on all metals, as well as other surfaces. It is applied by spraying, and can be formulated as an air dry or baking finish.

The finish attained using this product is smooth, has good hiding qualities, and good abrasion resistance. Demonstration samples may be obtained from the Mearl Corp., 153 Waverly Pl., New York 14, N. Y., or by circling No. 12 on Reader Service Card inside back cover.

★ ★ ★

Precious Metal Plating Tanks

Four plating tanks fabricated from Iolyte, laminated chemical resistant fiberglass, have been installed in the plating department of the Bulova



Two Iolyte tank installations for plating watch dials.

APPLE POLISHING IS NOT OUR BUSINESS but METAL FINISHING IS!

and for **THAT JOB** here's America's finest Medium Priced Line!

Cadet

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HALLMARK OF METALWORKING THROUGHOUT THE WORLD

INFINITELY VARIABLE SPEED, PROPER SPEED, MOTOR DRIVEN

BUFFERS—POLISHERS

IN 16 DIFFERENT TYPES AND SIZES

Top production efficiency in buffing, polishing or coloring with uniform finish in maintaining peripheral speed. Available in 2, 3, 5, 7½ and 10 HP.

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Type CT

See in action at Industrial Finishing Exposition Cleveland June 20-23 Booth 450

the STANDARD electrical tool co.

BUFFERS - POLISHERS and MACHINE TOOLS

2518 RIVER ROAD • CINCINNATI 4, OHIO

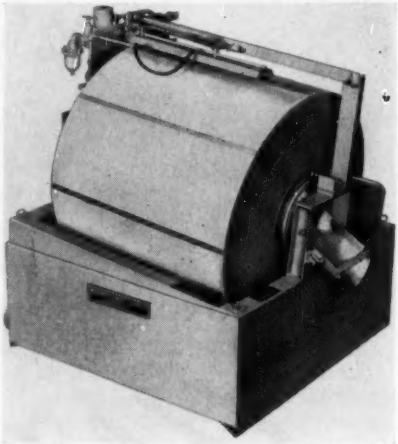
Watch Co., Bulova Park, Long Island. They were fabricated and installed by the Schori Process Div., Ferro-Co Corp., Long Island City, N. Y. Advantages claimed for tanks made of this material are high strength and resistance to plating chemicals.

Each of the four tanks serve a different purpose: one is used for numeral plating, one for preparation for silver plating, another is used for color plating, and the fourth for the acid line. Approximately 10 by 3 by 3 feet, each tank has up to 12 compartments for dip and spray rinses. Compartments are designed to provide a continuous flow of water for dip rinses. Tanks have from one to three inlets and drains, and provision is made for agitators and steam coils. Tanks are set in stainless steel housings.

For further data circle No. 13 on Reader Service Card inside back cover.

Solution Filter

The Murray-Way Corp. of Birming-



Murray-Way Model 10 Filter

Protect spray booths with
BOOTHCOTE
the finest product made!
SAFER
NON-INFLAMMABLE, NON-TOXIC.
DRY-OR-WET
Boothcote No. 4 for dry wall booths
(just peel off overspray)
Boothcote No. 5 for water wash walls
SAVES
TIME, LABOR, MONEY!
In 55 gal. drums..... 80¢ gal.
In 15 gal. drums.....$1.00 gal.
In 5 gal. pails.....$1.25 gal.
F.O.B. Buffalo, N. Y.
Inquiries Invited—Samples On Request
HYGRADE Food Products Corp.
Industrial Division
18 Stetson St., Buffalo 6, N. Y.

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CARLSTADT, NEW JERSEY

OUR REPRESENTATIVES AND
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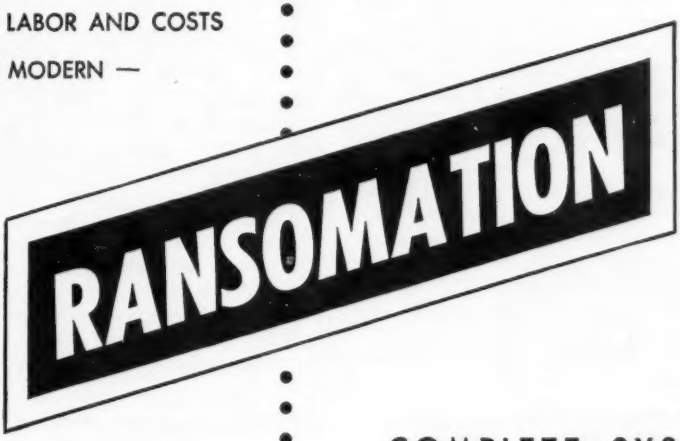
AT YOUR SERVICE TO
HELP REDUCE FINISHING
TIME, LABOR AND COSTS
WITH MODERN —



COMPLETE SYSTEM
AUTOMATION
IN ANY COMBINATION
OF TREATMENTS FOR
CLEANING AND FINISH-
ING METAL PARTS.

RANSOHOFF, INC.

610 NORTH FIFTH STREET
HAMILTON, OHIO

ham, Mich. has announced the development of an improved automatic filter.

The Murray-Way Model 10 Filter automatically rotates fresh filtering area into position while simultaneously ejecting the contaminated cake. The filtering screen is divided into eight equal parts, and is screw-mounted. Filter screen material can be supplied in monel, stainless steel, brass or bronze. Various sizes of screen openings are available.

Contaminant retained on the filter screen is removed by air pressure and is dropped directly into the exit chute. Through the filter float control, the air unit is actuated only when the drum turns. That operation occurs when the contaminant cake restricts filtering and the liquid level rises to operate the float control.

The Murray-Way filter may be used on an individual machine unit, or as a central filter for many units. The gallon capacity of filtration may be increased by adding filter drums in tandem, separately, or in the same tank, as desired.

For further data circle No. 14 on Reader Service Card inside cover.

★ ★ ★

Paint Stripper

Econostrip 300, a paint stripper which may be diluted with water to meet specific requirements, has been announced by Beck Equipment Co., Cleveland, Ohio.

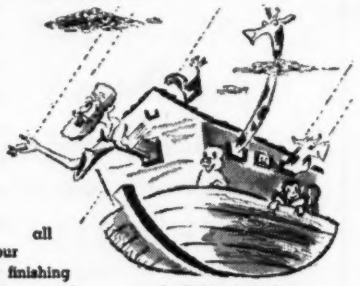
According to the manufacturer, Econostrip 300 can be highly diluted with water and still retain sufficient potency to strip a wide range of finishes. This paint stripper is said to be equally effective when used in a continuous production operation or from a drum.

For Platers, Silversmiths, Jewelry Mfgrs., Makers of Watches, Clocks and Electronics and other metal finishers.

Supplied in straight or crimped brass, steel, nickel silver or stainless steel wire in sizes .0025 to .006 and in bristle, fibre or Nylon. Special sizes and shapes to order.

Write (Dep't. P) on your letterhead for catalog and price list.

DIXON & RIPPEL, INC. KINGSTON, N. Y.
ESTABLISHED 1856



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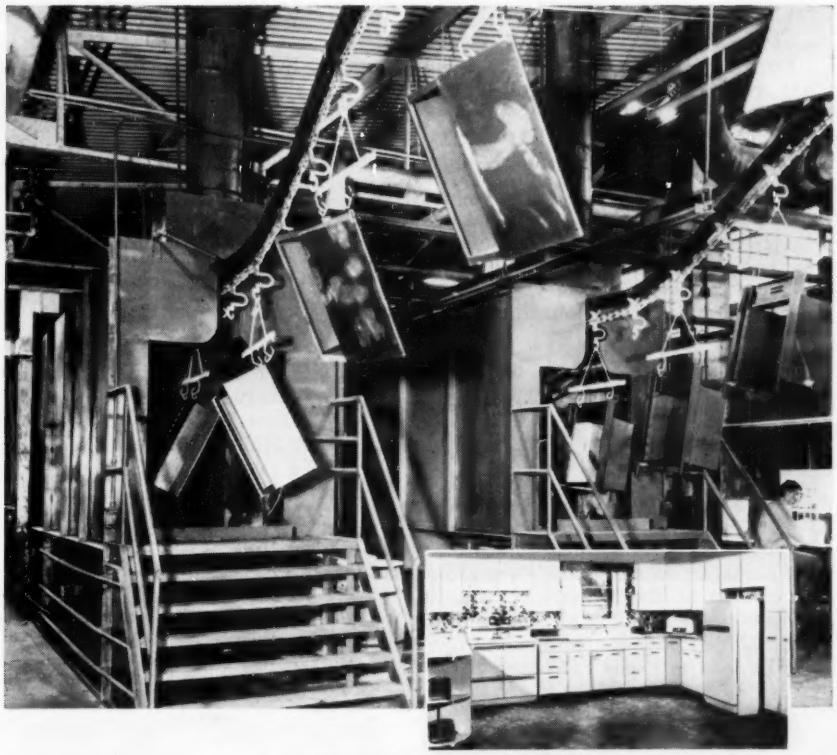


How to get a "Bulldog Grip" on beauty!

The bright, shiny new paint finish looks wonderful when it comes off the production line. Looks equally fine in the showroom, when the customer makes her choice.

Then it gets out into service, and the real test begins.

Bonderite's "bulldog grip" holds paint finish to metal. In Bonderite installations like the one shown above, the surface of the metal (before painting) is converted chemically to a nonmetallic coating integral with the metal which resists corrosion, confines damage from scratches to the site of the injury itself. It's satisfaction insurance, used today on leading painted products of all types where lasting fine appearance is important.

If you aren't now using Bonderite on your painted metal products, better check up and learn how economically you can have its advantages. Call or write today!

**Bonderite, Bonderlube, Parco, Parco Lubrite—Reg. U. S. Pat. Off.*

Since 1915—Leader in the Field

PARKER RUST PROOF COMPANY

2172 E. Milwaukee, Detroit 11, Michigan

BONDERITE	BONDERITE and BONDERLUBE	PARCO COMPOUND	PARCO LUBRITE	TROPICAL
corrosion resistant paint base	aids in cold forming of metals	rust resistant	wear resistant for friction surfaces	heavy duty maintenance paints since 1883

Further data concerning Econostrip 300 and other Beck strippers may be obtained by writing Beck Equipment Co., 3350 W. 137th St., Cleveland 11, Ohio, or by circling No. 15 on Reader Service Card inside cover.

★ ★ ★

Belt Grinder

An abrasive belt grinder, the BG-8 Automat, which flat-grinds and polishes small metal parts, has been announced by the Engelberg Huller Co., Syracuse, N. Y. It is equipped with a self-powered, continuous work feed and an 8 by 107 inch abrasive belt.

Work pieces for the unit are manually loaded but automatically ejected. Ejectors consist of either a positive stop to slide a part off its supporting ledge or a spring claw entering a groove in a pad behind the work. For normal parts, the supporting ledge is shaped as a shallow V-block, with work supported close to the belt.

The feed unit has 21 fixture plates, each 3¾ by 6¼ inches. The number of parts that can be loaded on each fixture plate is limited only by their size. Moved by parallel roller chains, each fixture plate is tracked to the leading edge of the abrasive belt, riding on hardened and ground shoes over hardened and ground steel rails. As the work advances to the belt surface, it is fed slowly across the belt, then is retracted quickly before reaching the far edge of the belt.

Feed speeds are variable; fixture plate rates of travel can be set at 1090, 1350 or 1750 per hour.

For further information, write The Engelberg Huller Company, Inc., Syracuse, N. Y., or circle No. 16 on Reader Service Card inside back cover.

★ ★ ★

Laboratory Ovens

The Model HA series of portable laboratory and small production ovens has been announced by The W. W. Sly Manufacturing Co., Cleveland, Ohio.

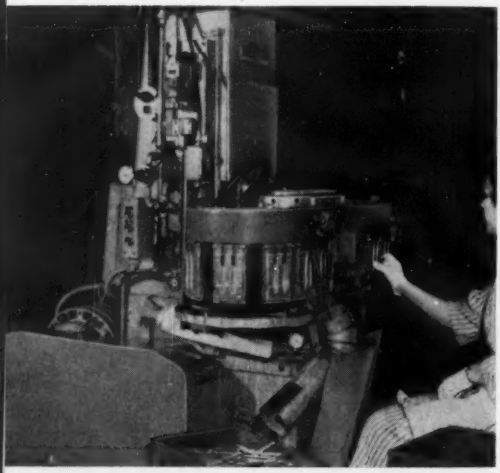
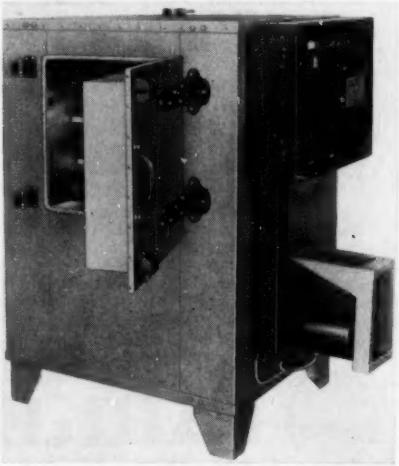


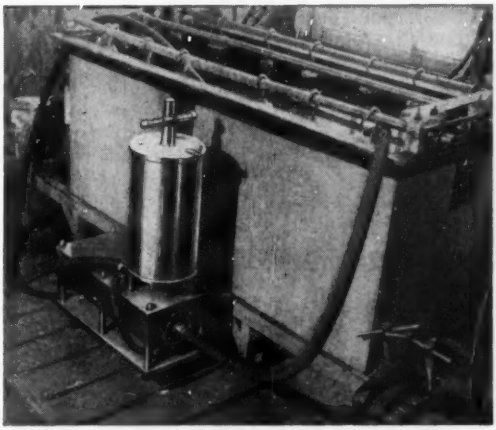
Fig. 1—Knife blades being ground on BG-8 Automat abrasive grinder.



Model HA Laboratory Oven

Here's how to cut your losses

get better finished plated work — save time and labor



The *"Sealed-Disc"* Filter will remove all dirt, dust, and sludge from your plating solutions. You will no longer worry about pitting, spotting, poor adhesion, formation of nodules, etc.

More and more platers testify to the remarkable savings in operating time and labor that the *"Sealed-Disc"* Filter gives them. These cost-minded platers get better finished plated work and have found that their solutions last longer. *"Sealed-Disc"* Filters, designed to meet plating room requirements, are smaller, more compact and portable, than ordinary conventional filters.

Regardless of the size or type of your installation, there's a *"Sealed-Disc"* Filter to "fit your job". You can depend on a *"Sealed-Disc"* Filter for positive, trouble-free performance that's proof against even the invisible impurities that cause nodules and porousness, proof against losses caused by rejects and reworking. Write for complete details or contact your regular plating supplier.

ALSOP
ENGINEERING CORPORATION

1005 Keen Street Milldale, Connecticut

Other Alsop Plating Room Equipment

We manufacture a full line of Mixers and Agitators coveringa complete range of sizes, for mixing, blending, and dissolving. Stainless Steel Mixing Tanks are also available in a wide range of capacities. For full details and illustrations write for your free catalog.

Advantageous features offered by these ovens are electrical interlock for turning off heat in case of blower motor failure, manual interlock for purge operation of blower without heat, uniform work chamber temperatures, high volume adjustable air flow, and adjustable exhaust and intake.

These ovens are supplied in the horizontal flow type with maximum temperatures of 650 deg. F. to 850 deg. F. and 400 to 1000 c.f.m. capacities. Vertical flow ovens range from 650 deg. F. with 600 to 1200 c.f.m.

In addition, Sly Manufacturing Co. offers industrial portable electric ovens which can be used singly or in batteries: also high temperature ovens, thermostatically controlled, for high temperature processing such as stress relief of springs and plated parts; and a complete line of large industrial convectioneered ovens with temperatures up to 700 deg. F.

For further information, write The W. W. Sly Mfg. Co., 4784 Train Ave., Cleveland 2, Ohio, or circle No. 17 on Reader Service Card inside back cover.

★ ★ ★

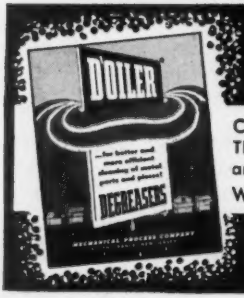
Pumps

Chempump Corporation has announced the Model CHS series of 5 and 7½ horsepower pumps, which offer leakproof pumping at heads to 195 feet and capacities to 300 g.p.m.

As with other Chempump designs, pumped fluid is allowed to enter the enclosed rotor chamber, providing automatic lubrication of the bearings. Rotor and impeller are an integral unit and the only moving part.

The Model CHS series is available in cast iron, stainless steel, Monel or Carpenter-20 construction as standard.

TECHNIC
Soluble Gold
For Industrial and Decorative Electroplating
THE WORLD'S BEST SOLUBLE GOLD AND RHODIUM · SUCCESS OF SUCCESSES
TECHNIC INC.
Providence, Rhode Island, U.S.A.
JAckson 1-4200



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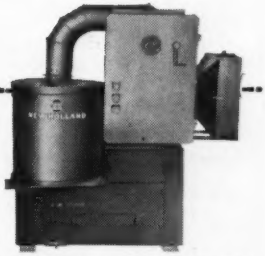
D'OILER DEGREASERS
Contains details on all types of degreasers: Laboratory, Two-Dip, Three-Dip, Vapor Spray, Barrel Type, Automatic, Semi-Automatic and Specials.
When the job needs a degreaser . . . there's a D'OILER for the job.
MECHANICAL PROCESS CO., Inc. 392 VALLEY STREET SOUTH ORANGE, N. J.

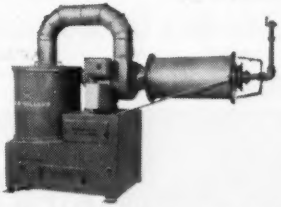
Why it pays to SPIN-DRY plated work— small lacquered parts

1. Standard Model. Takes nearly every type of part. Built for long, trouble-free service. J. I. C. and N. E. C. controls also available.

Choose from 3 carefully engineered models . . .



2. With Auxiliary Steam Heating Unit. Used for small parts that hold moisture—lacquered parts—or where cold water rinse is used. Shown with J.I.C. control—N.E.C. control also available.



3. With Auxiliary Gas Heating Unit. Used for small parts. Caution: Do not use with inflammable materials.

Saves time . . . With the New Holland Kreider Dryer operating at 625 r.p.m. on only ¾ h.p. you can *spin-dry* a basket of parts (1140 cu. ins.) in as little as 35 seconds—no more than 2 minutes.

Improves quality. . . With a New Holland Kreider Dryer, high speed centrifugal spin-drying eliminates scarring and marring, assures smooth, evenly dried surfaces, with longer lasting luster . . . fewer "rejects."

Cuts costs . . . What's more, though a New Holland Kreider Dryer occupies less than 6 sq. ft. of floor space, it's a big money saver. Power costs are low, production high—with little or no maintenance over the years. And one man can operate it, easily, efficiently.

See for yourself. Write Department PF-5-500 today for illustrated 4-page folder.

New Holland Machine Co., New Holland, Pa.

NEW HOLLAND *KREIDER* DRYER

Temperature and pressure limits are 450 deg. F. and 150 p.s.i. with standard models. Much higher limits are possible with special models.

Complete information can be obtained by writing to Chempump Corporation, Station C, 1300 East Mermaid Lane, Philadelphia 18, Pa., or by circling No. 18 on Reader Service Card inside cover.

TRUE BRITE
OXYPHEN
pH PAPERS

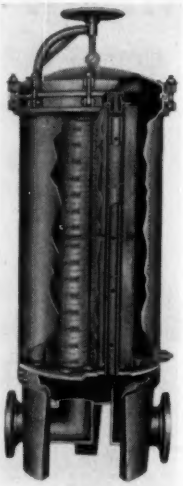
- Each strip identifies itself.
- Packed in transparent pocket-sized case.
- Easy to use—simply match color of indicator bar with corresponding constant color bar.
- A range for every purpose.

WRITE FOR LIST OF RANGES

⅔ actual size

TRUE BRITE CHEMICAL PRODUCTS CO.
BOX 31 • OAKVILLE, CONN.

Solution Filters



Honan-Crane Full Flow Filter

The Filtration Division of Houdaille-Hershey of Indiana, Inc., Lebanon, Indiana, has announced a line of liquid processing equipment known as Honan-Crane Full Flow Filters. Designed for filtering parts washing solutions and other liquids, these filters offer flow rates up to 900 g.p.m.

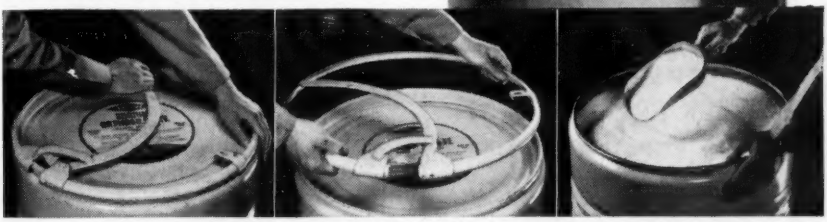
Engineered for in-line installation, these filters combine compactness with high flow capacity. Nine different sizes are available, using one to 36 cartridges. Flow rates range from 25 to 900 g.p.m.

All models feature quick opening covers for convenience in changing cartridges. A permanent neoprene gasket seals the cover tightly to the filter tank. Cartridges are sealed by a removable hold down cap; a spring on the cap compresses when the cover is closed, preventing bypassing.

GLO-QUARTZ*
IMMERSION HEATERS
for
ALL ACIDS, ALKALIES, WATER, ETC.
GLO-QUARTZ ELEC. HEATER CO., INC.
WILLOUGHBY, OHIO
*Trademark Reg. U. S. Pat. Off.

DOW SODIUM ORTHOSILICATE

Improved recessed-head lever-lock grips tighter, yet opens and closes more easily; full open-head makes *all* contents readily and quickly accessible.



exclusive, improved all-steel drum with full open-head and sturdy lever-lock brings you new shipping, handling and storage advantages

The completely new Dow Sodium Orthosilicate "package" makes an even *better* buy of this *preferred* heavy-duty cleaning compound. Exclusively Dow's, the all-steel drum now available ships better, handles easier, saves you valuable storage space.

Notice the improved swedged-in head design, and the recessed-head lever-lock. These features reduce the chances of drum damage in shipping or storage. A tighter seal is obtained, along with full accessibility to the last scoopful of Sodium Orthosilicate.

This sturdy drum is the ideal container where storage is damp or heavily moist. And don't overlook its salvage value.

You can get Sodium Orthosilicate in the new drum from Dow plants and distributors. Add its advantages to these *recognized* benefits of Dow Sodium Orthosilicate: uniform high quality and dependably prompt delivery. Result: more good reasons for placing your order with Dow. THE DOW CHEMICAL COMPANY, Midland, Michigan.

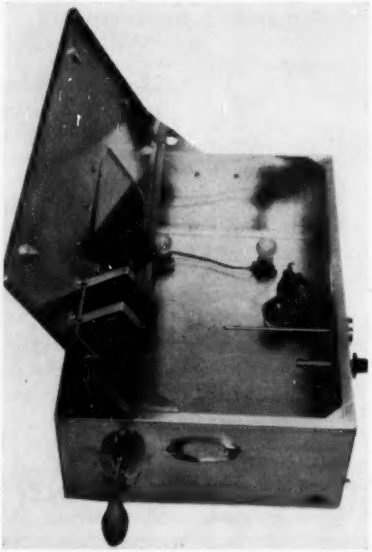
you can depend on DOW CHEMICALS DOW

For further information on Honan-Crane Full Flow Filters, write Filtration Div., Houdaille-Hershey of Indiana, Inc., 216 Superior Ave., Lebanon, Indiana, or circle No. 19 on Reader Service Card inside back cover.

★ ★ ★

Blush Cabinet

A blush cabinet designed to enable users to determine the blush resistance of lacquers quickly has been announced by Sharples Chemicals, Inc., subsidiary of the Pennsylvania Salt Manufacturing Co., Philadelphia, Pa. Readings of temperature and humidity are made directly, no calculation being required. The apparatus is compact and portable. The cabinet is constructed of aluminum, with overall dimensions of 10 by 20 by 30 inches. Weight is approximately 40 pounds.



Interior of Blush Cabinet

Humidity is adjusted by injecting water mist through an atomizer. A relative humidity of 80 per cent can be produced within the cabinet in about 5 minutes. Relative humidity is indicated directly to plus or minus 1 per cent by a Serdex hygrometer.

Air circulation and purging is accomplished by means of a motor blower with variable intake, which provides a slow circulation of humid air or a rapid purging of the air in the box when the clear plastic inspection doors of the cabinet are open.

Temperature is thermostatically controlled from room temperature to 120 deg. F.

The panel rack will accommodate a 3 by 5 inch panel. A clear plastic door near the panel rack permits observation during tests.

KEEP SPRAY BOOTHS SAFER FROM FIRES!

with the original non-inflammable

BATES BOOTHCOATING #4 (for dry booths)
BATES BOOTHCOATING #5 (water type)
BATES FLOORCOATING (for floors)
at 1940 prices

- Makes frequent cleaning easy
- Paint peels off in sheets
- Saves time and labor in applying
- Advocated by Insurance Companies

New Low Prices

15 gallon drums 90¢ gallon
55 gallon drums 80¢ gallon*
F.O.B. Buffalo, N. Y.
***55 gallon drums only prepaid $1.00 gal.**

BATES WATER WASH COMPOUND
275# drums 12¢ lb. Buffalo

Our Money-Back Guarantee Is Your Assurance Of Top Quality and Satisfaction

Distributors Franchise Open

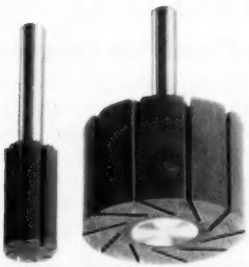
BATES SOAP CORP.
1231 Seneca St. • Buffalo 10, N. Y.

give your shop a "BONUS BOOST"

With Chicago Rubber's NEW

COSMO EXPANDER WHEEL

You'll get faster grinding • Better work
Longer belt life • Easier trouble-free performance
Instant abrasive change • No down time



Cosmo Expanders up to 2" diameters available with ¼" mandrels for hand tools. Larger sizes up to 8" diameters—arbor hole type only. Specials to your specifications.

This brand new slotted rubber Cosmo Expander wheel cuts down high shop costs and valuable time. It's easier to operate and will allow you to get all the usable life out of your abrasive bands and sleeves. To change bands—no tools necessary. Slip it on and the centrifugal force exerted by this wheel holds the abrasive element tightly with no possibility of slipping—replacement becomes a matter of seconds. And what's most important, you will instantly notice a vast improvement in quality—the higher degree of resiliency in the Cosmo Expander will give you the best work you've ever done. You can't miss. Write for descriptive literature today.

"REMEMBER, IT'S THE WHEEL THAT DOES THE WORK"

CHICAGO RUBBER COMPANY, INC.

2620 CLYBOURN AVE. • CHICAGO 14, ILLINOIS

Further information is obtainable from Sharples Chemicals, Inc., R & D Division, P. O. Box 4388, Philadelphia 18, Pa., or by circling No. 20 on Reader Service Card inside back cover.

★ ★ ★

Plating Solution Filter

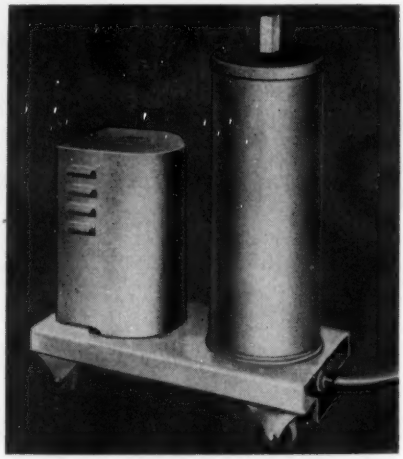
The Lea Manufacturing Company, Waterbury, Connecticut, has announced the Clean-Flo Filter, a portable type filter for clarifying alkaline plating solutions and other alkaline type liquids, coolants and lubricants. Two models are available, each offering the same flow rates.

The smaller filter will handle from 100 to 150 gallons of activated carbon treated solution between tube changes; the larger standard unit from 500 to 1,000 gallons. The Moyno Pump, used on these filters, delivers up to 800 g.p.h. against zero p.s.i. back pressure and from 500 to 600 g.p.h. against 50 p.s.i. back pressure.

The principle of Clean-Flo Filtration involves the use of filter tubes of honeycomb construction providing "depth filtration" with minimum clogging.

An automatically operated "blinking light" indicates when filter tubes should be changed.

The Moyno self-priming pump is assembled with the filter to provide a compact portable unit, protected from splashing and mounted on a base with wide swivel type casters, providing portability.



Model 701FE Clean-Flo Filter

For further data circle No. 21 on Reader Service Card inside back cover.

★ ★ ★

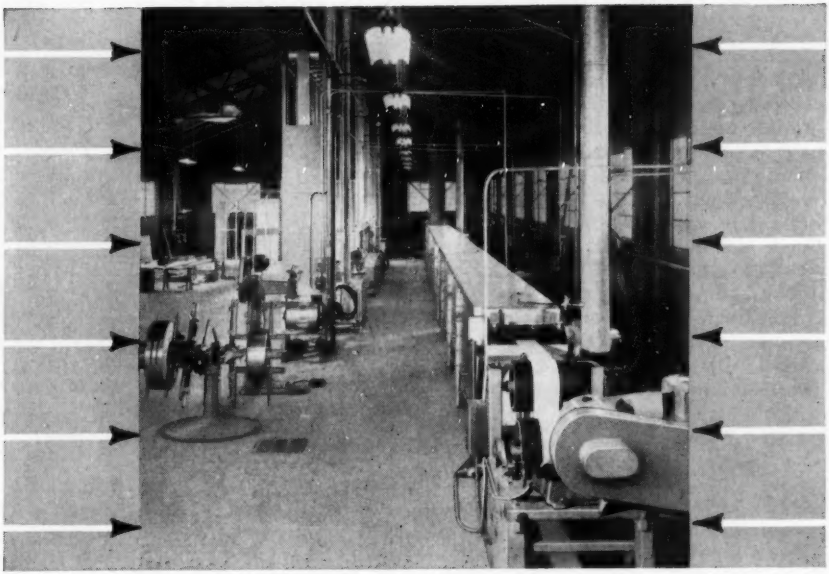
Aluminum Cleaning Process

A cleaning process for removal of aluminum oxide and dirt from aluminum prior to welding has been announced by The Diversey Corp., Chicago, Ill. A four step process is recommended, using Diversey No. 808 and Diversey No. 514, yielding a surface

PLATERS'
STOP
OFF PUTTY
Formula No. 5
Trial pound $2.50
Info. on request

HARD CHROME PLATING
Resists Chromic Acid. For threaded holes, cavities, nuts and bolts, gears, rack coatings.
ANDERSON'S PLASTICS CO.
Box 416, Natick, Mass.

McKeon's "Liquid Sulphur"
Economical, satisfactory for
STRIPPING COPPER
and
OXIDIZING COPPER AND SILVER
Literature on request
Sulphur Products Co., Inc.
228 McKEON WAY GREENSBURG 6, PA.



Don't Let Small Space Deprive You of
ROLLACOATING Speed and Economy

Here's one way Gasway engineers adapted continuous ROLLACOATING to restrictive length requirements. By developing a U-shaped unit, they U-tilized available space for double-duty effectiveness. The strip passes through an elevated cross-over, at rear. Feed and re-wind are virtually side by side for added convenience of operators.

Don't take it for granted that limited space makes efficient ROLLACOATING out of the question. Vertical installations, multiple parallel lines operating at slower speeds, and other Gasway innovations work wonders in restricted areas.

Engineering initiative, however, is just one "plus" of dealing with the leader, for Gasway ROLLACOATING quickly pays for itself, as well as for building alterations. A continuous unit, as illustrated, can perform every function from cleaning and treating to coating both sides, baking, and re-coiling—all in a single pass. It gives you fastest-of-all paint application without wasting a precious drop. Write for the whole savings story.

Through speedy metal coating, then forming, ROLLACOATING has revolutionized manufacturing methods in industry after industry. We'll be glad to give you full facts on continuous units as well as on individual sheet coaters.

Gasway CORPORATION

6461 N. RAVENSWOOD AVE.
CHICAGO 26, ILLINOIS

that is low in electrical resistance.

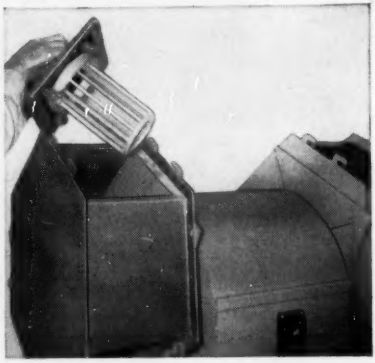
Cleaner No. 808 is used prior to deoxidizing to remove dirt, oils, and other foreign matter. Diversey No. 514 is used to remove the oxide film from the aluminum and inhibit its reformation. Welds should be made within 24 hours to achieve consistent results. No toxic fumes are evolved from the Diversey No. 514 oxide removal compound, the manufacturer states.

For further information, write The Diversey Corp., 1820 Roscoe St., Chicago 13, Ill., or circle No. 22 on Reader Service Card inside back cover.

★ ★ ★

Tumbling Barrel Covers

For parts that require selective tumbling, Rampe Manufacturing Co., Cleveland, Ohio, has introduced a drum with three removable covers, designed for use on the Rampe Super Twin Barrel Finisher. This makes the tumbling barrel more versatile, and helps to speed operations.



Rampe Tumbling Drum uses removable covers for greater versatility.

Instead of using a specially built barrel with a built-in rack, a standard barrel with three openings and standard plain covers which are adapted to various racking fixtures can be used. Thus a wide variety of parts can be tumbled in the same barrel, with little lost time. The drum measures 10¾ by 23 inches in diameter.

For full information, write Rampe Manufacturing Co., 14915 Woodworth Ave., Cleveland 10, Ohio, or circle No. 23 on Reader Service Card inside cover.

★ ★ ★

Dip-Type Paint Remover

The Klean Strip Co., Memphis, Tenn., has announced a dip-type paint remover called Dip Strip, for use on rejects in finishing procedures. This product can be used repeatedly, and incorporates a water-seal which re-forms

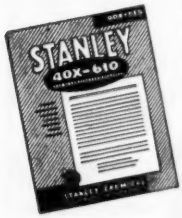
PAINT MIXER
MIRACLE PAINT REJUVENATOR
All paint restored to original consistency without opening the can.
2 minutes per gallon.
MIXERS AVAILABLE
¼ PT. to 55 GALS.
MIRACLE PAINT REJUVENATOR COMPANY
127 E. 9th St., St. Paul 1, Minn.
5 GAL. MODEL

For a real good polishing job use
Keystone TURKISH Emery
FRESH SUPPLY AVAILABLE
KEYSTONE EMERY MILLS Write for Sample 4316 Paul St., Phila., Pa.

Weatherproofs in ONE OPERATION

Stanley 40X-610 one-package WASH-PRIMER

Now steel or iron parts can keep the weather at bay throughout a year of outdoor storage without topcoating. Reason: Stanley 40X-610. This one-package, one-operation wash primer for spraying, brushing, or dipping forms a weather-tight skin that lasts. Its resistance to corrosion and rust creep is excellent. And Stanley 40X-610 may be used with most topcoats. Find out more about this low-cost, easy-to-apply outdoor protection... write today for the new bulletin on Stanley 40X-610 to: Stanley Chemical Company, 31 Berlin Street, East Berlin, Connecticut.



LACQUERS

JAPANS

SYNTHETICS

ENAMELS

STANLEY CHEMICAL

quickly, even after agitation, so that evaporation is retarded, the manufacturer states.

Dip Strip is designed to remove many types of finishing materials, such as paint, baked enamel, lacquer, chromate primer, and so on, from metal surfaces by submerging into a tank which requires no heat. The addition of material to replace that lost in ordinary use brings the product back to standard. Dip Strip will clean away old, hard and dried finishes as well as fresh ones, it is claimed.

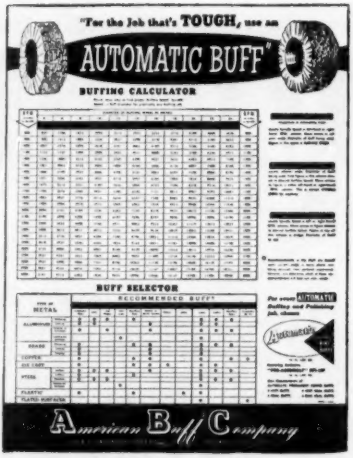
For further information, write to The Klean Strip Co., P.O. Box 3565, Memphis, Tenn., or circle No. 24 on Reader Service Card inside back cover.

★ ★ ★

Buff Selector Wall Chart

Buffing shop foremen and operators can save time and eliminate guesswork in finding the right buff, the right size, and the right speed for every buffing job with the Buffing Calculator and Buff Selector Wall Chart now available free of charge.

The chart provides information on: proper Surface Speed, Spindle Speed, and Buff Diameter for practically any buffing job; plus the recommended type of buff for both cutting and coloring operations on various metals and surfaces.



Buff Selector Wall Chart

Any buff user can obtain a free copy of this chart by writing to American Buff Co., 2414 South La Salle Street, Chicago 16, Ill.

For further data circle No. 25 on Reader Service Card inside back cover.

NOW . . .
YOU CAN ADD AUTOMATIC REGULATION TO YOUR PRESENT RECTIFIER WITH
Gn PLUG-IN CONTROLLER
- NO REBUILDING
- NO REWIRING
- JUST PLUG-IN AND OPERATE
- ANY AMPERAGE OR VOLTAGE

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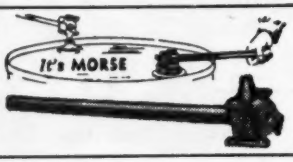
550 FIFTH AVE. N. Y. 37, N. Y.
SELENIUM RECTIFIERS ALSO AVAILABLE
SALES AGENT INQUIRIES INVITED

Portable Sandblast Gun
—Complete— simply connect to air line
Rugged • Efficient • Guaranteed
$27.50
A Real Performer
Handy in any shop
Box 885 P
Los Gatos, Calif.
LINDBERG PRODUCTS CO.

Send NOW for this FIT-ALL
DRUM PLUG WRENCH
Instantly loosens, tightens 95% all plugs or bungs in steel drums. Has 16" extra-strong steel tubing handle. Wgt. only 2 lbs. Order 1 or more today!



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SATISFACTION GUARANTEED **$3.30**
Non-sparking type $5.10
Plus Parcel Post
MORSE MFG. CO., Inc.
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New Singleton "H-T Sincolite" Test Cabinet

Built to meet all U. S. Government Specifications for Accelerated Corrosion Testing

Clear Visibility — "Picture-Windows," front and rear, for wide view. Observe progress during tests without opening lid or handling the specimens. Fog can be controlled visually.

Uniform Accuracy—Users report test results within "10% of absolute duplication." New water-jacket heaters for uniform temperatures throughout. "H-T Sincolite" is non-porous, inert.

Lasts Years Longer—Exclusive Singleton Fusion-Welded "H-T Sincolite"—permanent, no leak seams. No deterioration, no maintenance, won't wear out. **The finest at the lowest price!**

Send for Bulletin and prices.

The G. S. Equipment Co.

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NEWS of the Industry

NEW PLANTS

The **RAMPE MANUFACTURING COMPANY** has consolidated two plants in a factory with double the combined floor space of the two old plants. The new factory is located at 14915 Woodworth Ave., Cleveland 10, Ohio. Rampe Manufacturing Co. manufactures tumbling and burring machines.

★ ★ ★

A. J. MITCHELL, president of the Mitchell-Bradford Chemical Co., manufacturers of Black Magic blackening processes for ferrous and non-ferrous metals, metal cleaners, rust preventives, plating specialties, and heat treating salts, has announced the completion of a new plant to accommodate increased production, larger offices and research facilities.

The manufacturing area was planned in a straight line flow system, allowing steady uninterrupted production.

A large section is set up for the chemical research laboratory and product control, new product development and customer problems.

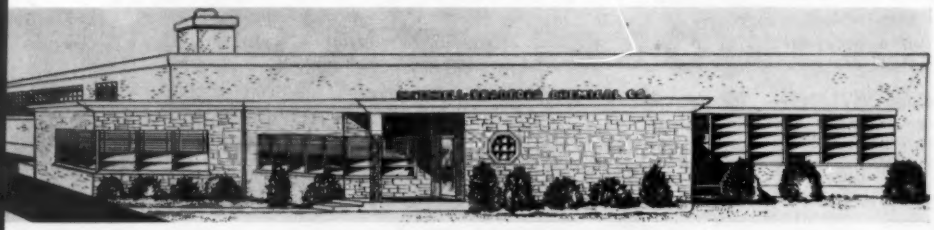
The plant is situated on approximately three acres of land to provide for further expansion.

★ ★ ★

VEA CHEMICAL COMPANY, manufacturing chemists, has announced the opening of a new laboratory in the plant, at 1217 Main Ave., Cleveland, Ohio. The modern equipment and facilities will be used to further research and development of B.R.P. Electroless Nickel. The services of the laboratory are offered in processing experimental and sample parts.

COMPANIES

The formation of a new company, **YORK METAL FINISHERS, INC.,** 26 E. 10th Ave., North York, Pa., has been announced by Quentin S. Stump, president of the company. Products and services of the company include tumbling



Perspective of new Mitchell-Bradford Chemical Company plant.

Uniform temperature of SLY Convectioneered Ovens *speeds product finishing*

This highly efficient, yet inexpensive, box type oven is being used for a wide variety of work involving baking, drying, and finishing.

Equipped with a modern, forced convection heating system, it assures uniform temperature throughout — faster and better baking for finishing, quick removal of moisture and fumes, and operating economies.

This efficient handling of air in Sly Ovens is the key to their operating efficiency. Properly located ducts of generous size, in relation to the circulating fan, insure free air flow and uniform distribution.

Ask for Bulletin 200, describing Sly Ovens for every need, and discover the advantages in Sly Convectioneered Ovens for your operations.

THE W. W. SLY MANUFACTURING CO.

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Branches in:
New York • Chicago • Philadelphia • Rochester
Detroit • Buffalo • Cincinnati • St. Louis • Minneapolis
Birmingham • Denver • Los Angeles • Toronto

compounds, barrels, and auxiliary equipment, and job shop tumbling and deburring of parts.

Mr. Stump founded the Hill Electroplating Co., York, Pa., and later sold it. Subsequently, he was associated with the Lord Chemical Corp. as sales manager. Co-founder of the new company is Lyle D. Sprenkle, who was a sales engineer for Lord Chemical Co., prior to the formation of York Metal Finishers, Inc.

★ ★ ★

AMERICAN RECTIFIER CORPORATION of New York City, manufacturer of selenium rectifiers for industrial and commercial applications has announced the appointment of the **INDUSTRIAL SALES DIVISION, LIPMAN ELECTRIC COMPANY** of Baltimore, Md., as regional representative in the states of Maryland and Delaware.

★ ★ ★

WYANDOTTE CHEMICALS CORPORATION will feature a display of the use of radioactive soils and a Geiger Counter to show efficiency of cleaning in Booth 236 at the Industrial Finishing Exposition, June 20-23, Cleveland, Ohio. The display will feature the complete line of Wyandotte products for cleaning, burnishing, phosphatizing, spray booths, and paint stripping.

The booth will be staffed by P. N. Burkard, manager Industrial, Railroad and Aircraft Department; R. J. Racine, manager Industrial Sales; Edward Kubis, Technical Service Department; and Mid-West Wyandotte Chemicals Industrial Department representatives.

★ ★ ★

PITTSBURGH PLATE GLASS COMPANY has announced the execution of an agreement providing for the purchase of the **BARRELED SUNLIGHT PAINT COMPANY,** with paint producing plant and headquarters at Providence, R. I. The purchase will not become effective until all stockholders of Barreled Sunlight Paint Co. consent to the transaction by depositing their stock with an escrow agent.

According to E. D. Peck, vice president of Pittsburgh Plate Glass Co., Barreled Sunlight will continue to operate under the same name as a wholly-owned subsidiary of Pittsburgh Plate Glass Co. It will be managed by the present staff, headed by Wilbur L. Rice, president.

Geiger Counter which will be used by Wyandotte Chemicals Corporation to demonstrate efficiency of cleaning.

Ben P. Sax

The **AMERICAN BUFF COMPANY**, organized in 1936 with Ben P. Sax as president, custom designs and manufactures buffs for specific industrial uses. Instead of merely producing conventional buffs, American Buff's research department has adapted sisal for buffs. This rope-like material is imported and unique patented bias design is employed to add longer wear and improve buff efficiency. To answer the problem of obtaining flexibility necessary for contoured steel surfaces, American Buff has designed the Unit Sisal Buff. This design retains the desirable cutting qualities of sisal but provides maximum flexibility by utilizing finger-like units.

When reports indicated that the inherently loose weave of sisal apparently did not stand up well in smaller-sized models, American Buff folded 86 x 93 buffing cloth around and into the sisal units on a test basis. Not only was fast cutting ability and flexibility retained and the material strengthened for considerably longer runs, but hard-to-get higher color finishing was also achieved.

Today Ben P. Sax can reflect on his American Buff Company, a major buff producer, with well deserved pride of accomplishment. His three plants supply buffs for countless metal working operations from coast to coast. American Buff now sells more buffs each day than in the whole year of 1936.

★ ★ ★

A new idea contest has been announced by the **CARBORUNDUM CO.** All non-supervisory employees in the United States, Canadian and subsidiary plants of the company are eligible to participate. Grand prize in the contest will be a new automobile; second prize offers the winner his choice of a room-full of furniture to a value of $1200; third prize consists of a stove and refrigerator. Alternate cash prizes of $2,000, $1,000 and $500 have been listed, and during the 4-month course of the contest, various merchandise prizes will be awarded to stimulate interest.

Scheduled to run from April 1 to July 31, the primary purpose and objective of the contest is to find employee-suggested methods for increasing production, improving service and reducing costs.

★ ★ ★

A chemical rustproofing treatment for ferrous metals was one of 129 "Merit Award" developments selected by a panel of nine judges from among hundreds of products brought to market within the past two years by Bay State manufacturers. It was received in competition for honors in the Merit Court of the Associated Industries of Massachusetts.

This award went to **RUST PROOFING & METAL FINISHING CORP.**, Cambridge, Mass., for the Endurion rustproofing treatment, which provides a final finish in black, gray, olive drab and other colors, or a base for organic finishes. The official citation describes it as . . . "a single-dip chemical immersion process, which reacts on a phosphated ferrous metal surface to form a complex compound, integral with the metal, which is more dense and far more corrosion-resistant than the base phosphate."

★ ★ ★

The Tin Research Institute has developed two applications of tin as a nickel alloy: Tin (65 per cent) and nickel (35 per cent) for plating, and copper (75-82 per cent), nickel (15-20 per cent) and tin (3-5 per cent) for stamping, forming, and embossing.

Portable Tin-Nickel Plating Plant used to demonstrate tin-nickel alloy plating.

A portable tin-nickel plating plant is being used to demonstrate the ease and simplicity of the process. The machine shown in the accompanying photograph will be on display in the booth of the **METAL AND THERMIT CORPORATION** at the Industrial Finishing Exposition in Cleveland June 20-23. It will also be in operation in the booth of the Technical Service Center for Tin at the Canadian Trade Fair in Toronto May 30-June 10.

★ ★ ★

THE HARSHAW CHEMICAL CO., Cleveland, Ohio, will have a display at the 1955 Industrial Finishing Exposition. It will occupy Booth Nos. 460-462 at the public auditorium, Cleveland, Ohio, June 20-23.

The display will feature two Harshaw bright nickel plating processes, Perglow and Nubrite, the characteristics of which will be demonstrated at the booth.

The following Harshaw representatives will be in attendance: C. O. Meline, Chicago; L. J. Howald and A. R. Waters, Cincinnati, H. E. Nice, M. M. Beckwith, R. F. Taylor, L. Gianelos, W. P. Karash, A. C. Benning and D. M. Hutchison, Cleveland; W. J. McCormick, L. Willick and R. M. Waters, Detroit; C. F. Robison, C. J. McGuire and E. M. Jones, New York; E. G. Smith, Philadelphia; and R. J. Goldbach, Pittsburgh.

★ ★ ★

Sales of **SCHMIEG INDUSTRIES, INC.**, makers of industrial equipment, have increased three-fold in the past four years, according to Henry M. Margolis, president.

A drive to step up sales has been launched by the company, which produces industrial ovens, mechanical washers, dust and fume eliminators, spray booths and finishing systems for the automotive and other metal-working industries. The aim of the program is to expand present markets, and to open up new markets in the aircraft and chemical industries.

★ ★ ★

Purchase of assets of the **ZAPON INDUSTRIAL FINISHES DIVISION** of the **ATLAS POWDER COMPANY** of Wilmington, Delaware by **THE GLIDDEN COMPANY**, Cleveland, Ohio, has been announced by Dwight P. Joyce, Glidden president and board chairman.

The acquisition includes all notes and accounts receivable, patents, formulas, trademarks, certain specialized equipment and the sales and technical staffs of the Zapon Division.

The transfer becomes effective immediately and the new unit will operate as the Zapon Industrial Coatings Division of The Glidden Company.

Mr. Joyce reported that Glidden will utilize the plant facilities of Zapon at Stamford, Conn. and North Chicago, Ill. during a transition period so as not to interrupt service to present customers. Plant operations will later be transferred to the Glidden facilities that presently exist in those areas.

A pioneer in industrial finishes, Glidden is now a major producer of industrial coatings with 11 plants in this country and Canada.

★ ★ ★

The **PENNSYLVANIA SALT MFG. CO.**, Philadelphia, Pa., has announced the annexation of the Gilron Company line of dry soap lubricants to the Pennsalt Fos and metal cleaners line.

A three day meeting of Gilron and Pennsalt executives, salesmen and engineers was held at the Skytop Club in the Pocono Mountains, Pa., at which the history, development and technical features of metal processing operations were discussed. It was stated that the addition of Gilron Drawcote to the Pennsalt Foscoat process will provide a complete line of metal cleaning, lubricating and bonding chemicals.

Under the instruction of Gilron men John Mordica and Gene Edwards, Pennsalt salesmen are undergoing extensive on-location training in the installation of Drawcote processing materials and equipment.

★ ★ ★

Two manufacturers of graining equipment have combined sales and service facilities, so as to provide for nationwide distribution of their products. **AMERICAN RICHWOOD PRODUCTS CO.**, 104 E. Mason St., Milwaukee 2, Wisconsin, will serve companies east of the Mississippi and in Canada, and **ROTO FINISHING SYSTEMS**, 1105 Glencoe Ave., Compton, Calif., will serve companies west of the Mississippi.

Roto Finishing Systems specializes in a continuous cylinder machine for graining the edges of tables, machines for graining television cabinets, and other assembled cabinets, as well as machines for any flat pieces up to 48 inches wide.

American Richwood Products Company offers a choice of 35 different wood patterns which are photographic reproductions of cabinet woods. These can be used to grain manually or with a power machine.

★ ★ ★

Interesting facts about catalyzed materials and the DeVilbiss Catalyst Gun were disclosed in a talk by **HAROLD C. FORNWALL,** equipment analysis engineer of the **DeVILBISS COMPANY.** The speech was given recently before a technical sub-committee of the Industrial Products Finishes Committee of the National Paint, Varnish & Lacquer Association, at Boca Raton, Florida.

Mr. Fornwall related that one of the aspects encountered during application of some catalyzed materials is that heat is generated during the chemical reaction, thus reducing baking schedules and temperatures.

Among the applications mentioned during the talk were the application of epoxys to laboratory bench tops by a catalyst spray gun, providing an acid resistant finish, and the application of iso-foams to surfaces where sound deadening, corrosion resistance, and insulation are desirable. In the latter instance, the degree of foam and thickness is controlled by the amount of catalyst introduced through the gun. Thickness can be controlled from ⅛ inch to 2 inches. Semi-rigid and rigid types have been applied successfully.

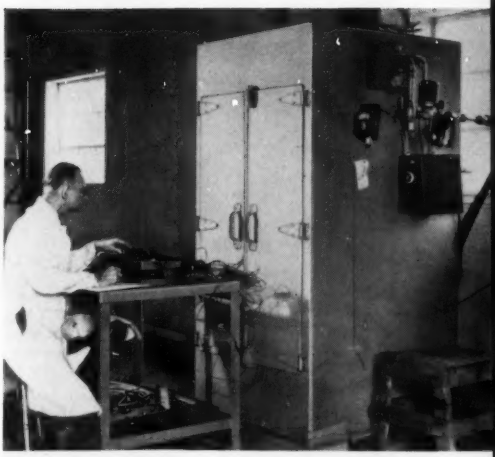
Mr. Fornwall also mentioned the desirability of using a paint heater in applying these materials, as resin-catalyst mixtures are very viscous, and can be reduced to a sprayable consistency by the application of heat. The paint heater also aids in assuring that the catalyst is thoroughly intermixed.

The catalyst gun, Mr. Fornwall said, helps to eliminate the problem of "pot life," since mixing of the materials is done outside the air cap.

★ ★ ★

A new research and testing laboratory was recently placed in operation at the **DESPATCH OVEN COMPANY** in Minneapolis, Minn. The new lab, which is equipped with a battery of precision testing devices, provides for closer production control of Despatch products. It also makes available pre-purchase performance testing for customers.

Various Despatch Oven designs, present and projected, will be performance-tested in the new lab. Equally important to customers is the fact that Despatch will use the lab to test product and oven applications before the decision to buy is made.



Temperature uniformity within an oven is checked by a lab technician in the new research and testing laboratory of the Despatch Oven Company.

NEW POSITIONS

ARCHIMEDES DORIA of Portland, Oregon, has been named editor of "Plating" by the Executive Board of the American Electroplaters' Society.

Mr. Doria had been associated with McGraw-Hill as editor of several magazines, and has had more than 15 years' experience in the writing and publishing fields. He studied at New York University, at Tusculum College, Tennessee, and abroad.

★ ★ ★

LOUIS F. WEYAND, executive vice president and a director of Minnesota Mining & Manufacturing Co., has been named director of sales.

Mr. Weyand succeeds George H. Halpin, also an executive vice president and board member, who will remain active as a consultant in specific sales and operating problems.

Glenn M. Herring

Hanson-Van Winkle - Munning Co., Matawan, N. J., has announced the appointment of **GLENN M. HERRING** as manager of steel mill sales.

The company has also announced the concurrent appointments of **WILLIAM H. BROWN** as sales representative at Philadelphia for eastern Pennsylvania, and **FRANK W. MOUNTAIN** as sales representative at Pittsburgh for western Pennsylvania, West Virginia and Alabama.

Frank W. Mountain

William H. Brown

Mr. Herring has been associated with major steel mills and steel mill suppliers for 25 years. He has now moved to the company's home office in Matawan.

A graduate of Colgate University, Mr. Mountain is a company-trained sales representative.

Mr. Brown was associated with the Beydel Chemical Co. prior to his association with Hanson-Van Winkle-Munning Co. He also worked as a safety director with the Signal Corps Engineering Laboratory at Fort Monmouth, N. J.

★ ★ ★

Appointment of **ARCHIE K. BEARD** as manager of the Metal Processing Division and eastern divisional manager of the new Chem-Mill Division has been announced by S. G. Thornbury, president of Turco Products, Inc., Los Angeles, manufacturer of specialized chemical processing compounds. Mr. Beard's office will be in Turco's plant in Newark, N. J.

In his position as manager of the Metal Processing Division, Mr. Beard will be in charge of national sales to all heavy industry, other than to transportation accounts. As eastern manager of the Chem-Mill Division, he will introduce the Chem-Mill method of contouring metal by chemical means to industrial firms in the eastern United Stafes.

★ ★ ★

R. C. MAHON, founder and for forty-three years president of the R. C. Mahon Company, Detroit, has been elected chairman of the board.

WALTER F. SHEETZ, executive vice-president and sales manager for many years, has been elected to succeed Mr. Mahon as president.

Other officers recently elected are: **HARRY J. LAWTHER, JR.,** secretary-treasurer; **C. L. CHUBBUCK,** first vice-president; **R. J. KRAEMER,** second vice-president. **FRANK J. BOMERSCHEIM, LESTON F. CHATFIELD, W. HENRY DUFFY, DAVID J. DUGGAN** and **WALLACE HERDLEIN** were named vice-presidents.

R. C. Mahon

Walter F. Sheetz

★ ★ ★

Two new abrasive engineers and a new field engineer have been appointed by Norton Company of Worcester, Mass. Territory changes for two other abrasive engineers were also announced.

LAURENCE G. HOLFELDER has been assigned to the central Indiana territory. **JAMES A. COLEMAN** will cover the territory in the area of Kansas City, Mo., and **RAYMOND B. GOODALE** has been appointed a field engineer at Norton's Chicago district office. All three are former members of the Sales

(Left to right) Laurence Holfelder, Raymond Goodale, James Coleman

Engineering Department.

In the territory changes, **WILLIAM A. SIMONDS** will now cover northern Texas and **PAUL B. FOXWELL** has been shifted from Kansas City to southern Texas.

★ ★ ★

Two appointments and the formation of a new section of Technical Service and Development have been announced by Donald Williams, vice president and director of sales for **THE DOW CHEMICAL COMPANY.**

J. P. MURPHY has been transferred from the Chicago sales office to the sales development unit of Technical Service and Development at Midland. He will handle the sale of titanium.

R. E. TENHOOR has been appointed supervisor of the new section, designated as the industrial chemicals section. This group will provide technical service for organic and inorganic products.

★ ★ ★

JOHN L. McLAUGHLIN has joined Allied Porcenell, Inc. of Phoenix, Ariz. and Waukegan, Ill. He has been appointed to the position of assistant to the president and will be in charge of the sales and service departments for the company's low temperature protective and decorative silicate coatings.

John L. McLaughlin

Prior to joining Allied Porcenell, Inc., Mr. McLaughlin spent eleven years with the Chicago Vitreous Corporation, acting in the capacity of service engineer, and five years in the U. S. Army. More recently, he has served as associate technical editor on the staff of "Finish" magazine.

★ ★ ★

DONALD A. KILB has been appointed district representative for Hammond Machinery Builders, Inc., Kalamazoo, Mich.

Mr. Kilb will represent the Hammond line of carbide grinders, abrasive belt grinders, polishing and buffing lathes, and dust collectors. He will have headquarters in Cleveland, Ohio.

Donald A. Kilb

★ ★ ★

Announcement of the appointment of **WILLIAM H. ROSS** as vice president of sales for Bart-Messing Corporation, Sel-Rex Precious Metals, Inc., and Detroit Die Casting Corporation, associated companies of the Bart-Messing organization, has been made by President Morris M. Messing.

William H. Ross

In his new position, Mr. Ross will be concerned with the expansion of the national sales activities of the three companies. He is an active member of the Detroit Branch of the American Electroplaters' Society.

Arthur B. Sherry

ARTHUR B. SHERRY has been appointed sales manager of the Stanley Chemical Co., East Berlin Conn., succeeding Lucius S. Knouse, who has been appointed sales manager for sliding door hardware, The Stanley Works.

Mr. Sherry joined Stanley Chemical in 1945, in laboratory development work. He has been technical service manager since 1952, and in charge of promotional work on new products.

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Lasalco, Inc., of St. Louis, Mo., has announced the appointment of **WILLIAM E. TREMBLEY** as representative for Lasalco equipment and supplies in the state of Texas and southern Oklahoma. He will be located at 113 Perry Rd., Irving, Texas.

Mr. Trembley will serve independent electroplating shops and manufacturers. He has spent eight years in the plating field in various capacities.

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The board of directors of the Tousey Varnish Company has elected **CARL R. HEAGSTEDT** president, **BRADFORD W. ALCORN** vice president, and **HARRY D. WRIGHT** as secretary. **RALPH F. KENDIG** remains as treasurer.

Mr. Heagstedt replaces the late William R. Alcorn, who was a pioneer with Tousey, having joined the company in its infancy.

Carl R. Heagstedt left the National City Bank in 1920 to join the Tousey organization. He became secretary in 1928, and was made vice president in 1935.

Bradford W. Alcorn joined the manufacturing division of the Tousey organization after finishing school in 1932; later he was transferred to the sales end, and in 1941 was made secretary of the company. In 1948 he became sales manager in addition to his secretarial duties, and will retain this phase of operation in his new position.

Harry D. Wright came to Tousey in 1936. He was placed in the production end of the business where he stayed until 1943, at which time he was made director of purchases. He will retain this duty in addition to that of secretary.

Ralph F. Kendig, re-elected as treasurer, has held that office since 1950. He joined Tousey in 1936 with a background of accounting, and has been in the financial division of the company.

Tousey makes paints, varnishes, lacquers, casting sealers and synthetics.

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CLEMENT WELLS, founder and president of Sarco Co., Inc., and Sarcotherm Controls, Inc., has retired to live abroad. The management and operation of the companies have passed to the executives who have served as directors for many years. The directors are L. Barfus, H. F. Collins, R. W. Cumming, A. Milnes, J. Service, and H. L. Simmons.

C. R. Heagstedt (left), B. W. Alcorn

H. L. Simmons (left), L. Barfus

42ND ANNUAL CONVENTION AND 4TH INDUSTRIAL FINISHING EXPOSITION, AMERICAN ELECTROPLATERS' SOCIETY, Municipal Auditorium, Cleveland, Ohio, June 20-23, 1955.

The new officers of Sarco Co., Inc., are: **H. L. SIMMONS**, president and treasurer; **R. W. CUMMING** and **A. MILNES**, vice presidents; **L. BARFUS**, assistant treasurer; **M. MOHR**, secretary.

The new officers of Sarcotherm Controls, Inc., are: **L. BARFUS**, president and treasurer; **R. STEVENS**, vice president; **H. L. SIMMONS**, assistant treasurer; **F. SCHNEIDERMAN**, secretary.

AES Convention Papers

"Practical Methods for Treatment of Metal Finishing Wastes"
By J. C. Hesler, Industrial Filter & Pump Mfg. Co., Chicago, Ill.

"Filtering Chrome Plating Solutions"
By R. F. Ledford, Industrial Filter & Pump Mfg. Co., Chicago, Ill., and L. Gilbert, Rock Island Arsenal, Rock Island, Ill.

"Metal Cleaning Evaluations Using Tagged Soils"
By J. Hensley, Wyandotte Chemicals Corp., Wyandotte, Mich.

"Qualities, Processing and Future of Porcelain Enamel and Ceramic Coatings"
By (author to be announced later).

"Methods of Conducting Classes for Electroplaters"
By Ezra A. Blount, Editor, PRODUCTS FINISHING Magazine, Cincinnati, Ohio.

"Lead-Tin-Antimony Alloy Plating"
By R. T. Putnam and E. J. Roser, Pratt & Whitney Aircraft, Division of United Aircraft Corp., East Hartford, Conn.

"Diffused Nickel-Cadmium as a Corrosion-Preventive Plate for Jet Engine Parts"
By R. W. Maeller and W. A. Snell, Pratt & Whitney Aircraft, Division of United Aircraft Corp., East Hartford, Conn.

"Electroless Nickel Plating of Non-Conductors"
By Philip H. Eisenberg and Harold C. Schneider, Sylvania Electric Products, Inc., Bayside, N. Y.

"Recovery of Plating Wastes"
By Louis Weisberg and E. J. Quinlan, Electroplating Consultants, New York, N. Y.

"Electrotinning Copper Wire from the Stannous Fluoborate Bath"
By A. E. Carlson, General Chemical Division, Allied Chemical & Dye Corp., Edgewater, N. J.

"Plating Beryllium Copper"
By S. J. Morana, Beryllium Corp., Reading, Pa.

"Some Aspects of Solution Level Control"
By John W. Holland, Loren Stevens, and Nello Arterburn (a committee of the Indianapolis Branch, American Electroplaters' Society).

"Progress Report on Outdoor Exposure Tests"
By W. H. Safranek and C. L. Faust, Battelle Memorial Institute, Columbus, Ohio.

"The Anodic Etch in Preparation for Plating"
By V. L. McEnally, Jr. and Fred G. Brune, Chrysler Jet Engine Plant, Detroit, Mich.

"A Study of Hydrogen Embrittlement in Regard to Electroplating"
By Carl Biser, Case Institute of Technology, Cleveland, Ohio.

"A National Survey of Production Costs in the Job Shop Plating Industry"
By a representative of the National Association of Metal Finishers.

"Current Ripple and Its Effect on Plated Deposits"
By a representative of R. O. Hull & Co., Inc., Cleveland, Ohio.

Educational Committee for A.E.S. 1955 Convention. Shown (left to right) are: Henry R. Friedberg, Arthur H. DuRose, co-chairman; John B. Winters, chairman; E. J. Riehl, co-chairman; Marilyn Sanicky, and Robert W. Wild. (*Photo courtesy American Electroplaters' Society*)

"Tin and Tin Alloy Plating"
By Robert T. Gore, Metal & Thermit Corp., New York, N. Y.

"Vacuum Metallizing of Metal"
By J. Gordon Seiter, F. J. Stokes Machine Co., Philadelphia, Pa.

"Outlook for the Distribution of Nonferrous Metals"
By Simon Strauss, American Smelting & Refining Co., South Plainfield, N. Y.

"A Study of Copper Phosphorous Alloy Anode Corrosion"
By Atillio Bissio, Federated Metals Division, New York, N. Y.

"Copper Anode Corrosion in Cyanide and Acid Copper Plating Baths"
By W. H. Safranek and C. L. Faust, Battelle Memorial Institute, Columbus, Ohio.

"Fatigue Limit in Chrome Plated Steel"
By a representative of United Chromium, Inc., New York, N. Y.

"Factors Affecting the Wear Life of Cloth Buffs"
By Ellsworth Candee, Lea Mfg. Co., Waterbury, Conn.

"Abrasive Blasting as a Metal Finishing Tool"
By C. Forestek, Forestek Plating Co., Cleveland, Ohio, and G. Haufman, Cleveland Cap Screw Co., Cleveland, Ohio.

"The Theory and Practice of Airless Spray Painting"
By a representative of Bede Products Div., U. S. Automatic Machine Co., Cleveland, Ohio.

HONORS

A transcontinental initiation into the **MAAS & WALDSTEIN CO. 25 YEAR CLUB** was held when men from the company's Newark, N. J., Chicago and Los Angeles plants were simultaneously welcomed into the quarter-century group in a ceremony at the Essex House Hotel, Newark, N. J.

Dr. G. Klinkenstein, left, president of Maas & Waldstein Co., welcomes Charles L. Berry into the company's 25 Year Club. At right is Robert F. Magnus, treasurer.

The new members included **CHARLES L. BERRY**, manager of the company's Mid-Western Industrial Division in Chicago, **JOSEPH STELKER** of the Newark plant and **LEO PUCACCO** of the company's Smith Davis Division in Los Angeles. Each received a gold wrist watch and lapel pin commemorating his 25 years with Maas & Waldstein Co.

SOCIETIES

PAUL O. BLACKMORE, of Interchemical Corp., Newark, N. J., will represent the Federation of Paint and Varnish Production Clubs at the summer meetings of the Federation of Technical Associations of the Paint and Printing Ink Industries in Continental Europe (FATIPEC) and Oil and Colour Chemists' Association of Great Brittain.

Paul O. Blackmore

Mr. Blackmore, a member of the New York Club and a past-president of the Federation, will present a technical paper at both of these meetings. Mr. Ralph E. Pike, of the E. I. duPont de Nemours & Co., Inc., Flint, Mich., will also attend the FATIPEC Congress, and will present a paper.

The FATIPEC Congress will be held in Spa, Belgium, from May 22nd to 27th. Mr. Blackmore will present a paper entitled "The Status of Color Technology in the U. S. A." Mr. Pike's subject will be "Application of Colorimetric Measurements to the Description of Tinting Characteristics of Common Blue Pigments."

At the OCCA Conference, which will be held at Llandudno, Wales, from June 7th to 11th, Mr. Blackmore will present a report on the Federation's Research

Program on "Film Formation, Film Properties, and Film Deterioration."

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The **13th ANNUAL EDUCATIONAL SESSION and BANQUET** of the **ROCKFORD BRANCH** of the **AMERICAN ELECTROPLATERS' SOCIETY** was held in Rockford, Illinois on March 19. Clyde Kelly, A. E. S. 1st vice president, served as chairman of the technical session. Speakers were Dr. Henry Brown, Director of Research, The Udylite Corp., Detroit; and Ezra A. Blount, editor of PRODUCTS FINISHING, who discussed "Diaphragm Plating Tanks", and showed color movies taken in Japan.

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The **A. E. S. ANNUAL TRI-STATE REGIONAL MEETING** was held in Columbus, Ohio on March 26. The **COLUMBUS BRANCH** was host for the affair, which was sponsored jointly by the **CINCINNATI, COLUMBUS, DAYTON, INDIANAPOLIS** and **LOUISVILLE BRANCHES** of the society. Despite a severe snowstorm, some 400 members and guests were present for the banquet following the technical session. Random views of several events of the meeting are presented on the following page.

Fig. 1—Dr. Henry Brown answers one of the many questions asked following his talk on, "The Role of Surface Active Agents in Electroplating." Shown at left is Clyde Kelly, who acted as chairman for the meeting.

Fig. 2—An interesting feature of the Rockford Branch educational session was the "coffee break" which took place between the presentation of the two technical papers.
(PRODUCTS FINISHING Staff Photos)

Fig. 1 (Top Photo)—View of luncheon group at the A.E.S. Annual Tri-State Regional Meeting. Reading counter-clockwise, they are: Walter W. Denney, hotel chairman, Wm. C. Schnicker, Columbus Branch president; B. D. Ostrow, Lea-Ronal, Inc.; Walter L. Pinner, Houdaille-Hershey Corp.; Myron B. Diggin, Hanson-Van Winkle-Munning Co.; Dr. Ralph A. Schaefer, A.E.S. president; Wm. H. Safranek, general chairman for the meeting; P. Peter Kovatis, A.E.S. executive secretary.

Fig. 2—Over 100 members and guests were present for the technical session. At the speakers' table are (left to right): Walter L. Pinner, who discussed A.E.S. Research Project No. 15; Myron B. Diggin, who spoke on "Specialized Nickel Plating Solution Applications;" Dr. Ralph A. Schaefer, session chairman; William J. Neill, program chairman; and B. D. Ostrow, who spoke on, "The Lea-Ronal Bright Copper Process." Shown on the speakers' table are examples of parts plated in several specialized nickel plating solutions .

Fig. 3—During the Columbus Regional Meeting, C. A. Van Dereau, Westinghouse Electric Corp., was presented with the official symbol of his membership in the A.E.S. Order of Past Presidents. Shown (left to right) are: Dr. George P. Swift, A.E.S. past president; C. A. Van Dereau, A.E.S. president in 1933 and '34; A. J. Turner, Moran Paint Co., William J. Neill, who made the presentation; Harvie J. Johnson, Belke Mfg. Co. (*PRODUCTS FINISHING Staff Photos*)

William G. Crawford

THE PLATING INSTITUTE OF MICHIGAN has announced the election of the following officers for 1955: **WILLIAM G. CRAWFORD,** Peerless Chrome Co., Detroit, president; **WILLIAM SAVIN,** Harding Mfg. Co., Inc., vice president; and **BUD ADELSPERGER,** Auto City Plating Co., treasurer.

The members of the Board of Directors, in addition to the above officers, are: **JOHN REILLY,** Reilly Plating Co., **GLENN H. FRIEDT, JR.,** United Platers, Inc., **ROBERT J. HUBER,** Michigan Chrome & Chemical Co.; and **HOWARD E. MORSE, JR.,** Northeastern Plating Co.

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THE SOCIETY OF DIE CASTING ENGINEERS has been formed to foster technological advances in die casting and finishing of metals and die molding of plastics and powdered metals.

The first chapter to be formed within the organization is the Detroit No. 1 Chapter. Officers of the group for the calendar year 1955 are: president, **HARRIS SHIMEL,** of Chevrolet-Bay City; vice president, **MARSHALL ABERLE,** H & M Industries; secretary, **GEORGE GRIFFENHAM,** Mergraf Oil Co.; recording secretary, **JOHN LAPIN,** Saginaw Bay Industries; treasurer, **ARTHUR TINETTI,** A. C. Spark Plug; librarian and historian, **MICHAEL TENENBAUM,** Lester Phoenix Machine Co.; and trustees, **HARRY ERICKSEN,** A. C. Spark Plug, **HERBERT ROUSHKOLB,** Cleveland Automatic Machine Co., and **JOHN MILLER,** H & M Industries.

Membership in the Society of Die Casting Engineers is open to those whose business activities relate to die casting, die molding, finishing and related arts. The national headquarters and offices will be located at 19370 James Couzens Highway, Detroit 35, Mich.

TRAINING COURSES

BINKS MANUFACTURING COMPANY SCHOOL OF SPRAY PAINTING has announced two one-week courses to be held at the company plant in Chicago from May 2-6, and June 6-10.

The school is open to anyone interested in, or connected with, the industrial application of paint and coatings. Previous experience is not required.

The classes are limited to 25 members in order to give personalized attention to individual problems.

Instruction is given by William Beacham, nationally known paint chemist and spray painting authority, who is also Director of Research for Binks.

Application for attendance should be made as far in advance as possible by writing to E. F. Watts, Binks Mfg. Co., 3118-40 Carroll Ave., Chicago 12, Ill.

NECROLOGY

WALTER A. FLETCHER, sales manager of the Western Division of E. F. Houghton & Co., died on April 4.

He had been in sales work with E. F. Houghton & Co. since 1922. After a number of years in Cleveland and in charge of Government contract work in the Philadelphia headquarters, he was named western sales manager in 1941, with headquarters in San Francisco.

Mr. Fletcher was active in the American Society for Metals, having served on numerous committees in the West.

meetings OF INTEREST TO FINISHERS

May 7. 37th Annual Banquet and Entertainment, Masters' Electro-Plating Association, Inc., Plaza Hotel, New York City.

May 7. Annual Meeting, Toronto Branch, American Electroplaters' Society, Sheraton-Brock Hotel, Niagara Falls, Ontario.

May 14. 16th Annual New England Regional Meeting, American Electroplaters' Society, Hotel Statler, Hartford, Conn.

June 20-23. 42nd Annual Convention and 4th Industrial Finishing Exposition, American Electroplaters' Society, Municipal Auditorium, Cleveland, Ohio.

June 26-July 1. Annual Meeting, American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City, N. J.

The Finishing Touch **By J. A. Patterson**

"Stop them from yelling 'Bang'!!"

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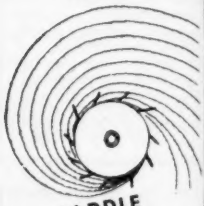

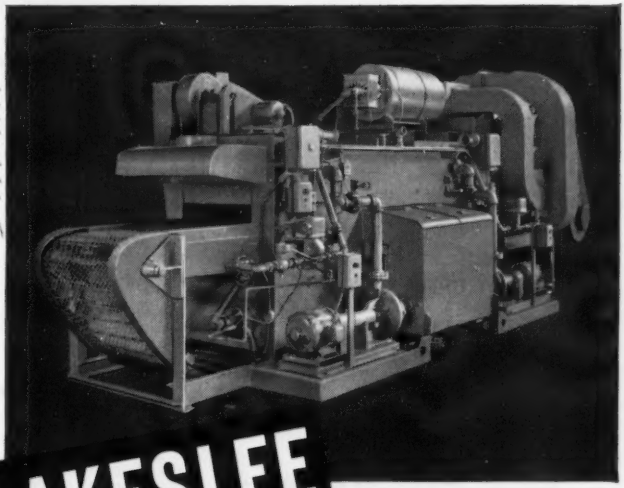

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Measure film thickness with the Elcometer. Write for leaflet and prices.

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REPRESENTATIVES

Distributors, jobbers and manufacturers' agents wanted by a leading midwestern manufacturer to distribute and sell a complete line of polishing and buffing compounds in bar, spray or paste form. Several territories now open. Please give all particulars in first letter which will be held in strict confidence.

McALEER MANUFACTURING CORP.
101 S. Waterman Avenue • Detroit 17, Mich.

PITTSBURGH AND ST. LOUIS TERRITORIES AVAILABLE

Leading Detroit manufacturer of Complete Finishing Systems, Dust Collectors, and Washers will make available Pittsburgh and St. Louis territories to experienced and capable Manufacturers' Agents on exclusive basis. Furnish complete information, will treat your correspondence in confidence. Schmieg Industries, Inc., P. O. Box 4701, Detroit 34, Michigan.

REPRESENTATIVE

SITUATION OPEN—Representative wanted to handle complete line of tumbling barrels, equipment, abrasives, compounds, etc., direct to metal working plants. Liberal commissions and repeat sale items. Territories open are Pittsburgh, Cleveland, Detroit, Chicago, Milwaukee, Indianapolis, and Cincinnati. Write, giving lines presently handled.

TUMBLING SALES & SERVICE CO.
King St. Greenwich, Conn.

INDUSTRIAL SALES ENGINEERS

Situation open—previous or current sales experience in vapor degreasing equipment, alkali washers, dryers, trichlorethylene and perchlorethylene required.

CIRCO EQUIPMENT COMPANY
Clark Township • Rahway, N. J.

This Opportunity Section is available for classified advertisements. For advertising rates and other information address: PRODUCTS FINISHING, 431 Main Street, Cincinnati 2, Ohio.

ELECTROPLATING ENGINEERING HANDBOOK — Edited by A. Kenneth Graham. 650 pages. Published by the Reinhold Publishing Corp., 430 Park Ave., New York, N. Y. Price, $10.00.

This book deals with the engineering aspects of electroplating, and is written primarily for the electroplater and electroplating engineer. The material presented is treated from a practical point of view. Materials, processes, and equipment are evaluated and compared with respect to engineering requirements.

Part I presents supporting data needed for electroplating engineering, and discusses in detail the various processes used by the electroplater. Chapters are included on cleaning and surface preparation, water requirements for plating, bath composition and operating conditions, standards and specifications, trouble shooting, testing and analysis, waste disposal, costs, safety and hygiene, and surface protection and finishing treatments.

Part II is devoted to engineering aspects of plants and equipment. Chapters are included on plant location and layout, floors, tanks, linings, heating and cooling, plating racks, barrel plating and fully automatic machinery, exhaust systems, anodes and cathodes, rectifiers, periodic reverse plating, rinsing, drying, filtration and auxiliary equipment.

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PRODUCT LITERATURE

46. Pressure Blast Deburring.

The use of pressure blast wet blasting equipment for deburring is described in Bulletin No. 3 available from the Cro-Plate Co., Inc., 747-6 Windsor St., Hartford, Conn. Advantages of the process, speed of the abrasive stream, and fineness of the abrasive are described, and performance data is given.

47. Plating Solution Analysis.

"Lea Analytical Methods of Plating Solution Control," is the title of a pamphlet available from Lea Mfg. Co., 16 Cherry Ave., Waterbury 20, Conn. This booklet discusses the Lea methods of and Lea reagents for plating solution analysis. An index to the various methods of analysis is included.

48. Tumblers and Barrel Finishers.

Rampe Manufacturing Co., 14915 Woodworth Ave., Cleveland 10, Ohio, has available a leaflet giving information on Rampe tumblers and barrels. Illustrations and complete descriptions of five different models are presented.

49. Vapor Spray Degreasers.

Bulletin No. 754 describing the Ramco vapor spray degreasers has been issued by Ramco Equipment Corp., 801 Edgewater Rd., New York 59, N. Y. Many features of the degreasers are detailed in this bulletin. Illustrations of the design and a table showing eight standard Ramco models are also provided.

50. Hot Spray Heaters.

Advantages of painting with hot spray equipment are outlined in a bulletin which may be obtained from the Spee-Flo Corp., Dept. 2-5, 720 Polk Ave., Houston 2, Texas. A diagram is used to show the operating principles of this equipment, and photographs show the 300 and 600 series Circaflo Models.

51. Sulfate Test Set.

Details of the Kocour Sulfate Test Set for quantitative control of sulfates in plating baths are given in a leaflet available from the Kocour Co., 4814 S. St. Louis Ave., Chicago 32, Ill. These units are complete with either hand operated or electric centrifuge available at the option of the user.

52. pH Papers.

A list of ranges for True Brite Oxyphen pH Papers may be obtained from the True Brite Chemical Products Co., Box 31, Oakville, Conn.

53. Automotive Finishing System.

Details of an automobile body finishing system are shown in a folder available from the R. C. Mahon Co., Detroit, 34, Mich. The system described is one of the most elaborate and complete installations in the industry.

54. Pressure Filters.

Industrial Filter & Pump Mfg. Co., 5904 Ogden Ave., Chicago 50, Ill. has available a catalog on vertical leaf pressure filters used for solution clarification. This catalog describes the design and construction of Industrial filters. Sizes available and capacity specifications are included.

55. Phosphate Coating.

A booklet entitled, "Phosphate Coating Comes of Age," which describes the seven types of conversion coatings most commonly used and explains the mechanism of phosphate coating formation, may be obtained from Metalwash Machinery Corp., 915 North Ave., Elizabeth 4, N. J.

56. Aerosol Touch Up Paint.

Full details on touching up with aerosol paint are contained in a bulletin being distributed by Sprayon Products, Inc., 2073 E. 65th St., Cleveland 3, Ohio. The principle of this method and advantages to the user are outlined, together with a list of typical applications.

57. Barrel Finishing Information.

Useful information on barrel finishing is given in a catalog manual which may be obtained from the Abbott Ball Co., 1064 New Britain Ave., Hartford 10, Conn.

58. Rubber Gloves and Clothing.

Platers' gloves are among the articles described in a catalog of industrial protective equipment which may be obtained from the Charleston Rubber Co., 20 Stark Industrial Park, Charleston, S. C. The gloves are available with a smooth inner lining or a grip-safe finish.

59. Metal Finishing Chemicals.

Chemicals for the finishing industry are described in a catalog which is available from Klem Chemicals, Inc., 14401 Lanson Ave., Dearborn, Mich. Materials for cleaning, phosphatizing, and paint stripping are included.

USE CARD FOR FREE LITERATURE

60. Basic Text on Spray Painting.

Entitled "The ABC's of Spray Painting," a booklet available from the DeVilbiss Co., Toledo, Ohio contains fundamental information on spray painting. The booklet is written in non-technical language and has a question and answer format. The questions used are the most commonly asked in the DeVilbiss Company's spray painting school.

61. Baking Finish Stop-Off.

Information on "Liquid Envelope" Stop-Off No. 6626 may be obtained from Better Finishes & Coatings, Inc., 268 Doremus Ave., Newark 5, N. J. This strippable coating is particularly useful where articles to be finished with baked enamel must be selectively masked, as this material is freely strippable after a baking cycle of 400 deg. F. for 15 minutes.

62. Paint Stripping Process.

The Kolene Process for paint stripping is detailed in literature available from the Kolene Corp., 12890 Westwood Ave., Detroit, Mich. Complete details are furnished, including specifications for the solvents used, and photographs of the equipment. Units are available for continuous or batch type operations.

63. Wood Grain Finishes.

A pamphlet entitled, "You Wood Would You?" giving a full explanation and description of wood grain finishes on metals is available from Rockford Varnish Co., Rockford, Ill. This process produces reproductions of true wood grains on metal.

64. Phosphatizing Process.

The use of iron phosphate coatings to improve paint adherence and prevent corrosion on steel is explained in a booklet available from Oakite Products, Inc., 20 Rector St., New York 6, N. Y. Entitled "How to Apply Iron Phosphate Coatings to Steel in Preparation for Painting," the booklet shows the advantages of Oakite Cryscoat iron phosphatizing materials.

65. Deburring Equipment.

Almco Division of Queen Stove Works, Inc., 916C Marshall St., Albert Lea, Minn. has available a bulletin describing the Almco Supersheen deburring and finishing equipment. Complete information and specifications on several different models are presented.

66. Chromate Conversion Coatings.

Form No. 157, cataloging Iridite chromate conversion coatings and ARP process chemicals is available from Allied Research Products, Inc., 4004-06 E. Monument St., Baltimore 5, Md. Given in this brochure are the basic characteristics of Iridite and its functions on various metals. A list of ARP process chemicals and brighteners is also included.

67. Barrel Finishing of Metal Parts.

Bulletin 44.2, describing barrel finishing of metal parts is available from Magnus Chemical Co., 208 South Ave., Garwood 5, N. J. This booklet defines the operations comprised in tumbling, rolling, deburring and burnishing.

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68. Metal Parts Washing Machines.

G. S. Blakeslee & Co., 1844 S. Laramie Ave., Chicago 50, Ill. has available a brochure featuring several types of metal parts washing machines. Illustrations and complete descriptions of these washers are presented.

69. Plating Products.

R. O. Hull & Co., Inc., Rocky River 16, Ohio, is distributing a folio which includes a booklet on Rohco test equipment for plating baths, featuring several models of Hull Cell rectifiers. Also presented are several other technical bulletins and a booklet entitled, "Rohco Platers Pointers."

70. Paint Products.

A folder being distributed by the Illinois Paint Works, 1034 S. Kostner Ave., Chicago, Ill., gives a list of products manufactured by the company, together with typical applications for each. The list includes synthetics, metallescents and hammer finishes, acid proof finishes, baking enamels, and electrostatic spray finishes.

71. Synthetic Resin Coatings.

A new eight-page bulletin on synthetic resin coatings describing vinyl, phenolic, Saran, polyethylene, Epon, Neoprene, plastisol, and silicone coatings is available from the MW Protective Coatings Division of Metalweld, Inc., Scotts Lane & Abbottsford Ave., Philadelphia 29, Pa. Illustrations show coating applications to storage tanks in the pickling and chemical industries.

72. Roller Coating.

A case history illustration of the use of a Gasway Rollacoater to enamel signs and displays is given in a sheet which may be obtained from the Gasway Corporation, 6461 N. Ravenswood Ave., Chicago 26, Ill.

73. Filter Pump Units.

Bulletin 101, describing Sethco filter pump units may be obtained from Sethco Mfg. Co., 70-72 Willoughby St., Brooklyn 1, N. Y. A list of several models with full-view plastic filter assemblies or stainless steel filter assemblies is given in this pamphlet.

74. Electrocleaner.

Bulletin No. 49B describing Diversey No. 12, a product designed to electroclean steel, copper and copper alloys with either reverse or direct current, may be obtained from The Diversey Corp., 1820 Roscoe St., Chicago 13, Ill. Illustrations and full information are given.

75. Chemical Products and Processes for Metal Finishing.

A folder offered by Enthone, Inc., 442 Elm St., New Haven, Conn., lists the company's products for metal finishing. These include compounds for the treatment of aluminum, materials for blackening and coloring metals, rust and scale removal compounds, metal strippers, strippers for organic finishes, conversion coatings, tumble finishing compounds, cleaning and rust inhibiting chemicals, and emulsifiable cleaners. Properties and uses of each of these materials is given under each listing.

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